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# 9.0 COMMUNITY PROFILES

This Chapter identifies and describes the HMS fishing communities as required under the Magnuson-Stevens Act and other laws. This Chapter consolidates all of the communities profiled in previous HMS FMPs or FMP amendments and updates the community information where possible. The communities profiled in this chapter were originally selected due to the proportion of HMS landings in the town, the relationship between the geographic communities and the fishing fleets, the existence of other community studies, and input from the HMS and Billfish Advisory Panels. Though additional communities could be impacted by changes to the current HMS regulations, the communities profiled in this section were previously identified as ones that are most likely to experience the most significant impacts. After reviewing the HMS permit databases, additional HMS-related community profiles should be developed in the future. Recommendations for these new profiles are included at the end of this chapter (Section 9.1).

## 9.1 Introduction

The Magnuson-Stevens Act requires, among other things, that all FMPs include a fishery impact statement intended to assess, specify, and describe the likely effects of the measures on fishermen and fishing communities (§303(a)(9)).

The National Environmental Policy Act (NEPA) also requires federal agencies to consider the interactions of natural and human environments by using a "systematic, interdisciplinary approach which will ensure the integrated use of the natural and social sciences...in planning and decision-making" (§102(2)(A)). Moreover, agencies need to address the aesthetic, historic, cultural, economic, social, or health effects, which may be direct, indirect, or cumulative. Consideration of social impacts is a growing concern as fisheries experience increased participation and/or declines in stocks. The consequences of management actions need to be examined to better ascertain and, if necessary and possible, mitigate regulatory impacts on affected constituents.

Social impacts are generally the consequences to human populations resulting from some type of public or private action. Those consequences may include alterations to the ways in which people live, work or play, relate to one another, and organize to meet their needs. In addition, cultural impacts, which may involve changes in values and beliefs that affect people's way of identifying themselves within their occupation, communities, and society in general are included under this interpretation. Social impact analyses help determine the consequences of policy action in advance by comparing the status quo with the projected impacts. Community profiles are an initial step in the social impact assessment process. Although public hearings and scoping meetings provide input from those concerned with a particular action, they do not constitute a full overview of the fishery.

The Magnuson-Stevens Act outlines a set of National Standards (NS) that apply to all fishery management plans and the implementation of regulations. Specifically, NS 8 notes that:

> "Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of

overfished stocks), take into account the importance of fishery resources to fishing communities in order to: (1) provide for the sustained participation of such communities; and, (2) to the extent practicable, minimize adverse economic impacts on such communities." (§301(a)(8)). See also 50 CFR §600.345 for National Standard 8 Guidelines.

"Sustained participation" is defined to mean continued access to the fishery within the constraints of the condition of the resource (50 CFR §600.345(b)(4)). It should be clearly noted that NS 8 "does not constitute a basis for allocation of resources to a specific fishing community nor for providing preferential treatment based on residence in a fishing community" (50 CFR §600.345(b)(2). The Magnuson-Stevens Act further defines a "fishing community" as:

> " ... a community that is substantially dependent upon or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, crew, and fish processors that are based in such communities." (§3(16))

The National Standard guidelines expand upon the definition of a fishing community, and state that, "A fishing community is a social or economic group whose members reside in a specific location and share a common dependency on commercial, recreational, or subsistence fishing or on directly related fisheries-dependent services and industries (for example, boatyards, ice suppliers, tackle shops)" (50 CFR §600.345(b)(2)). So while there is a diffuse Vietnamese-American population in Louisiana actively participating in the pelagic longline fishery and commuting to fishing ports as mentioned in Section 4.6, this group of individuals is not considered a fishing community, according to the National Standard guidelines.

NMFS (2001) guidelines for social impact assessments specify that the following elements are utilized in the development of FMPs and FMP amendments:

1. The size and demographic characteristics of the fishery-related work force residing in the area; these determine demographic, income, and employment effects in relation to the work force as a whole, by community and region.

2. The cultural issues of attitudes, beliefs, and values of fishermen, fishery-related workers, other stakeholders, and their communities.

3. The effects of proposed actions on social structure and organization; that is, on the ability to provide necessary social support and services to families and communities.

4. The non-economic social aspects of the proposed action or policy; these include life-style issues, health and safety issues, and the non-consumptive and recreational use of living marine resources and their habitats.

5. The historical dependence on and participation in the fishery by fishermen and communities, reflected in the structure of fishing practices, income distribution and rights.

## 9.2 Methodology

### 9.2.1 Previous community profiles and assessments

NMFS contracted with Dr. Doug Wilson, from the Ecopolicy Center for Agriculture, Environmental and Resource Issues at Rutgers, the State University of New Jersey, to help develop the community profiles and social impact assessments for the 1999 HMS FMP and Amendment 1 to the FMP for Atlantic Billfish. Dr. Wilson and his colleagues completed their fieldwork in July 1998. This study covered four species groups (tunas, swordfish, sharks and billfishes) that have important commercial and recreational fisheries extending along the Atlantic and Gulf coasts from Maine to Texas and in the Caribbean. The study investigated the social and cultural characteristics of fishing communities in five states and one U.S. territory: Massachusetts, New Jersey, North Carolina, Florida, Louisiana, and Puerto Rico. These areas were selected because they each had important fishing communities that could be affected by the 1999 HMS FMP and Atlantic Billfish Amendment, and because they are fairly evenly spread along the Atlantic and Gulf coasts and the Caribbean. The study compiled basic sociological information from at least two coastal communities for each state or territory. These locations were visited for further analysis. In the 1998 study, towns were selected based on HMS landings data, the relationship between the geographic communities and the fishing fleets, and the existence of other community studies. The information in this document incorporates by reference the Wilson *et al.*, (1998) study of the HMS fishery and the work of McCay and Cieri (2000) for the Mid-Atlantic Fishery Management Council, "The Fishing Ports of the Mid-Atlantic."

Additionally, this Chapter uses the information gathered under the contract with the Virginia Institute of Marine Science (VIMS) at the College of William and Mary to re-evaluate several of the baseline HMS communities (Kirkley, 2005). The VIMS study gathered a profile of basic sociological information for the principal states involved with the Atlantic shark fishery. From the 255 communities identified as involved in the 2001 commercial fishery, Amendment 1 to the 1999 HMS FMP focused on specific towns based on shark landings data, the size of the shark fishing fleet, the relationship between the geographic communities and the fishing fleets, and the existence of other community studies. While the recreational fishery is an important component in the overall shark fishery, the VIMS study did not profile the shark recreational fishery because participation and landings were not documented in a manner that permits community identification. The Wilson *et al*., study selected only the recreational fisheries found within the commercial fishing communities for a profile due to the lack of community-based data for the sport fishery. To the extent that it is available, the information on the HMS-related recreational fisheries has been incorporated into the community profiles.

### 9.2.2 Information Used in this Assessment

To ensure continuity with the 1999 HMS FMP and previous amendments, if a community was selected and described as being involved with an HMS fishery, the same community was included in this assessment. The HMS permit data support the need to include the previously profiled communities as communities that continue to be active in HMS fisheries. The communities selected for detailed study are Gloucester and New Bedford, Massachusetts; Barnegat Light and Brielle, New Jersey; Wanchese, and Hatteras Township, North Carolina;

Pompano Beach, Fort Pierce, Madeira Beach, Panama City Beach, and Islamorada, Florida; Boothville/Venice and Dulac, Louisiana; and Arecibo, Puerto Rico. These communities are not intended to be an exhaustive list of every HMS-related community in the United States; rather the objective is to give a broad perspective of representative areas. The demographic profile tables in this chapter were modified from previous documents to include the same baseline information for each community profiled. As a result, most of the tables include more information than portrayed in previous HMS FMPs and amendments. The demographic tables use both 1990 and 2000 Bureau of the Census data for comparative purposes. A profile for the U.S. Virgin Islands could not be created because the 1990 Census data were not available, and only some of the demographic information was available for 2000. Additionally, a descriptive profile for the Virgin Islands has not been developed for any previous HMS-related actions. The descriptive community profiles in this chapter include information provided by Wilson, *et al.* (1998) and Kirkley (2005) with some new information provided by Impact Assessment, Inc (2004) on the Gulf of Mexico communities. Unlike the Wilson, *et al.* (1998) study used in the 1999 HMS FMP, it was not possible to undertake field research for this assessment. In this chapter, the community descriptions are organized by state.

This assessment also reviewed the available information on location of HMS permit holders to provide information about residence and to identify additional HMS-related fishing communities that may be profiled in the future. Six GIS maps were generated to identify the communities where angler, charter/headboat, HMS dealers (tunas, shark, and swordfish combined), commercial tuna (all gear categories combined), directed and incidental shark, and swordfish (directed, incidental, and handgear combined) permit holders reside with four regional maps for the angler permits due to the volume of permit holders. In past community profile and social impact analyses, it was difficult to identify where HMS recreational fishermen were located because no data were available for the number of recreational fishermen and their landings by community. As a result, the previous assessments report on charter fishing operations, fishing tournaments, and related activities to identify the scope of recreational fishing for each of the communities described. The permit holder information should assist in identifying future recreational industry community profiles, such as Ocean City and Berlin, Maryland.

While geographic location is an important component of a fishing community, the transient nature of HMS may cause the permitted fishermen to shift location in an attempt to follow the fish. Because of this characteristic, management measures for HMS often have the most identifiable impacts on fishing fleets that use specific gear types. The geographic concentrations of HMS fisheries may also fluctuate from year to year, as the behavior of these migratory fish is variable. The relationship between these fleets, gear types, and geographic fishing communities is not always a direct one; however, they are important variables for understanding social and cultural impacts. As a result, the inclusion of typical community profiles in HMS management decisions is somewhat difficult, as geographic factors and use of a specific gear type have to be considered.

Several other chapters in this FMP include information that addresses the requirements described Section 9.1 and that is an integral part of this social impact assessment and fishery impact statement. Please refer to the Description of the Fisheries in Chapter 3, the Economic

Evaluation in Chapter 6, the Regulatory Impact Review (RIR) in Chapter 7, and the Final Regulatory Flexibility Analysis (FRFA) in Chapter 8. Furthermore, each of the management alternatives in Chapter 4 includes an assessment of the potential social and economic impacts associated with the proposed alternatives. The preferred alternatives are selected to minimize economic impacts and provide for the sustained participation of fishing communities, while taking the necessary actions to rebuild overfished fisheries as required by the Magnuson-Stevens Act.

#### *9.2.2.1 Community Impacts from Hurricanes Katrina and Rita*

The impacts of both Hurricane Katrina (late August 2005) and Hurricane Rita (September 2005) have yet to be fully realized, but have had a devastating effect on many Gulf of Mexico communities. NMFS has conducted assessments of the commercial and recreational fishing sectors, as well as the coastal communities and the supporting marine infrastructure (NMFS, 2005b). Much of this information is still preliminary and has not been thoroughly documented to date.

Storm surge and/or broken levies destroyed many of the Gulf communities, such as Venice, Louisiana and areas south of Belle Chasse (Ingles, pers. com.). Many individuals involved with HMS fisheries, and their families, have lost their homes and have been displaced or are living in temporary structures with no electricity or running water and only minimal monetary assistance from Federal Emergency Management Agency (pers. com. with affected fisheries participants). In some instances, vessels have become the primary residence because their homes were destroyed. Rebuilding has been challenging because many people did not have insurance prior to the hurricanes. Those with insurance found that it covered only wind and not water damage. And others with basic coverage found that it was not enough to cover the boat, business, and home. As a result, the hurricanes have accelerated gentrification in many of the communities (Ingles, pers. com.).

In addition to their homes, the storms had a devastating impact on fishing vessels in the Gulf region. These impacts include, vessels sunk, displaced, piled up, or completely destroyed (Ingles, pers. com.). Even though some vessel did survive the hurricanes, there was a major impact to the supporting infrastructure that the commercial industries rely upon (*e.g.*, seafood dealers, processors, suppliers) and anglers require to go fishing (*e.g.*, bait shops, marinas, etc.) (NMFS, 2005b). Where vessels escaped relatively unscathed by the hurricanes, but lost the supporting infrastructure to continue landing in their usual ports, fishermen chose to land their catch in Gulf ports located further west where the damage was not as great (Ingles, pers. com.).

The pelagic longline fishery was significantly impacted by the hurricanes since about 60 percent of the Eastern pelagic longline vessels were in the Gulf region when the hurricanes arrived (National Fishermen, 2006). The number of sets made in 2005 declined compared to 2004 with a majority of that decline attributable to the Gulf of Mexico area (National Fishermen, 2006). About 22 percent of the active PLL fleet showed no activity during third quarter of 2005, likely due to the impact of Hurricane Katrina; and about 14 percent of the active fleet showed no activity in the fourth quarter, possibly a result of Hurricane Rita. More than half the longline vessels operating out of Louisiana were fishing again by March 2006 with the remainder of the vessels severely damaged or being used for housing, rather than fishing (National Fishermen,

2006). Even those vessels that can still operate may not be in an area where the infrastructure is sufficient to support a commercial fishery and may not be able to relocate due to the rising price of fuel (Ingles, pers. com.).

While the impacts of Hurricanes Katrina and Rita were devastating to many Gulf communities, at least half of the inactive permit holders in the second half of 2005 had renewed their permits as of March 2006 (Preliminary Logbook Data, 2005). Though this does not necessarily indicate that these vessels are actively fishing, it at least indicates that the permit holders are hopeful about using the permits again.

## 9.3 United States Demographic Profile

In 1990, the United States had a total population of 248.7 million (Table 9.1). The population increased to 281.4 million in 2000. Throughout the previous decade, the population was roughly half female and half male. Individuals between 20 and 44 years of age comprised the largest proportion of the population in both 1990 and 2000. The dominant race was white. Ninety-two million total households, in 1990, grew to 105.5 million households in 2000. The average household and family size remained about the same between the two decades. The number of high school graduates, ages 25 and older, increased between 1990 and 2000 by about five percent (Table 9.1). Between 1990 and 2000, the total number of business establishments in the United States increased from 6.2 to 7.1 million. While unemployment decreased by half in 2000, the individuals below the poverty line decreased by less than one percent. In 1990, employment in farming, fishing, forestry, and mining industries accounted for 3.3 percent collectively; whereas in 2000, collective employment in these industries accounted for less than two percent.

**Table 9.1 Demographic Profile of the United States.** Source: U.S. Census, 1990 and 2000.

| Demographics | 1990 | 2000 |
|---|---|---|
| Total Population | 248,709,873 | 281,421,906 |
| **Sex** | | |
| Male | 48.7% | 49.1% |
| Female | 51.3% | 50.9% |
| **Age** | | |
| < 20 | 25.6% | 28.6% |
| 20 - 44 | 43.2% | 36.9% |
| 45 - 64 | 18.6% | 22.0% |
| > 65 | 12.6% | 12.4% |
| **Race** | | |
| White | 80.3% | 75.1% |
| Black or African American | 12.1% | 12.3% |
| American Indian and Alaska Native | 0.8% | 0.9% |
| Asian | 2.8% | 3.6% |
| Native Hawaiian and Other Pacific Islander | 0.1% | 0.1% |
| Other | 3.9% | 5.5% |
| **Household** | | |
| **Total** | **91,947,410** | **105,480,101** |
| Family households | 70.2% | 68% |
| Nonfamily households | 29.8% | 32% |
| Average household size | 3 | 2.59 |
| Average family size | 3.16 | 3.14 |
| **Housing Occupancy** | | |
| Total housing units | 102,263,678 | 115,904,641 |
| Vacant housing units | 10.1% | 9.0% |
| **Housing Tenure** | | |
| Owner-occupied housing units | 64.2% | 66.2% |
| Renter-occupied housing units | 35.8% | 33.8% |

| UNITED STATES | 1990 |
|---|---|
| **Population:** | 281,421,906 |
| **Education:** | |
| High school graduates (25 years or older) | 75.2% |
| **Economic Characteristics** | |
| Labor force (16 years and over) | 65.3% |
| Unemployed | 6.3% |
| Median Household Income | $ 30,056 |
| Individuals below the poverty line* | 13.1% |
| **Employment in some industry sectors:** | |
| Managerial/professional | 26.4% |
| Technical, Administrative, & Sales | 31.7% |
| Construction, Production, Maintenance, & Transportation | 26.2% |
| Farming, fishing, forestry, & mining | 2.5% |
| **Industry** | |
| Farming, fishing, forestry & mining | 3.3% |
| Construction | 6.2% |
| Manufacturing | 17.7% |
| Wholesale trade | 4.4% |
| Retail | 16.8% |
| Education, health & social services | 23.3% |
| Arts, recreation, lodging & food services | 1.4% |

## 9.4 State and Community Profiles

### 9.4.1 Maine

Between 1990 and 2000, the population in the state of Maine increased by about 4.6 percent (Table 9.2). The number of high school graduates, ages 25 years and older, has increased over the past decade. The unemployment rate decreased, while the percentage of individuals below the poverty line remained the same. Employment in the farming, fishing, forestry, and mining industries remained about the same with education, health, and social services industries providing the greatest source of employment for the state's residents.

As of February 2006, Maine had nine commercial vessels with shark and swordfish fishing permits (Table 9.38 and Table 9.39) and 517 commercial tuna permit holders (Figure 9.4 and Table 9.36). Maine also has 26 licensed dealers for tunas, sharks, and swordfish; ten of the dealers reside in Portland (Table 9.37 and Figure 9.5). In fact, Maine has the third greatest number of commercial tuna permit holders with 10.2 percent of the total (Table 9.36).

Despite having only four shark permits issued to Maine residents in 2006, there were several communities involved with the commercial shark fishery in 2003, such as Cape Elizabeth, Harpswell, and Portland (Cumberland County); Southwest Harbor and Winter Harbor (Hancock County); Owls Head and Rockland (Knox County); and Kittery, Milbridge, and Old Orchard Beach (York County) (NMFS 1999a). Many of the vessels homeported in Maine participate in the shark fisheries in southern waters and make landings in Florida and other states; therefore, landings are not always indicative of a community's involvement in a fishery. The incidental nature of shark catches off Maine for the commercial fishery is also true for the recreational fishery. Sharks are often taken incidentally during tuna fishing trips. There is, however, a small group of anglers who fish with light tackle for blue shark, mako, and porbeagle in the Gulf of Maine. To date, no HMS-related community profiles have been developed for the State of Maine, as there are no significant concentrations of HMS-related fisheries in any particular community.

In 2004, an estimated 287,000 sportfishermen made 760,000 fishing trips in marine waters off Maine (NMFS, 2005a). Of these anglers, about 54 percent were from out of state. About one percent of the HMS angling permit holders live in the state of Maine (Table 9.34 and Figure 9.1). The American Sportfishing Association (ASA) estimated that all saltwater recreational fishing in Maine in 2001 generated some $67.8 million in direct and indirect retail sales. Employment in marine recreational fishing services was estimated to be 1,287 jobs (ASA, 2002). An indication of recreational interest in shark fishing is that charterboats advertise for shark fishing trips from York Harbor, Sheepscot, Casco Bay, Saco Bay, Bath, Damariscotta, and Old Orchard Beach. Sixty-one charter/headboats in Maine held HMS permits as of February 2006 (Table 9.35). These Maine charter operations are seasonal, typically from Memorial Day to Labor Day, and some of the operators advertise that they move to Florida, or the Caribbean, to run charters during the Florida season from November to May.

**Table 9.2 Maine Demographic Profile.** Source: U.S. Census, 1990 and 2000.

| Maine | 1990 | 2000 |
|---|---|---|
| **Population:** | **1,227,928** | **1,274,923** |
| **Education:** | | |
| High school graduates (25 years or older) | 78.8% | 85.4% |
| **Employment:** | | |
| Labor force (16 years and over) | 65.6% | 65.3% |
| Unemployment Rate | 6.6% | 4.8% |
| Median Household Income | $27,854 | $37,240 |
| Individuals below the poverty line* | 10.8% | 10.9% |
| **Employment in some industry sectors:** | | |
| Farming, fishing, forestry & mining | 2.8% | 2.6% |
| Construction | 7.3% | 6.9% |
| Manufacturing | 19.7% | 14.2% |
| Wholesale trade | 3.6% | 3.4% |
| Retail | 18.4% | 13.5% |
| Education, health & social services | 24.8% | 23.2% |
| Arts, recreation, lodging & food services | 0.9% | 7.1% |

*U.S. Census uses data from 1989 and 1999 to estimate these values.

### 9.4.2 New Hampshire

New Hampshire's population increased by about 10.3 percent between 1990 and 2000 (Table 9.3). The number of high school graduates, ages 25 years and older, increased slightly. The unemployment rate decreased, while the percentage of individuals below the poverty line remained the same. Employment in the farming, fishing, forestry, and mining industries declined by six percent with education, health, and social services industries continued to provide the greatest source of employment for the state's residents.

New Hampshire's commercial shark fishery is very small and largely incidental to the take of other species. The local shark fishery involves three vessels (Table 9.38). Only one swordfish permit holder resides in New Hampshire (Table 9.39). There are 26 HMS dealers in the state of New Hampshire (Table 9.37). New Hampshire has the sixth greatest number of commercial tuna permit holders (Table 9.36). Slightly greater than one percent of the angling permit holders reside in New Hampshire (Table 9.34). Because of the relatively small size of the HMS fisheries, community profiles were not developed for New Hampshire ports.

The recreational fishery for sharks in New Hampshire waters is largely incidental, on a very small scale, and similar to that of Maine. Occasionally caught close to shore, most makos are taken in water reaching depths over 20 fathoms. New Hampshire is home to 324 HMS angling permit holders in 2005 (Table 9.34). There are 55 charterboat operators in Portsmouth, Rye, Seabrook, Hampton, as well as a few other towns, held HMS permits in 2005 (Table 9.35). Many of these charterboats advertise shark fishing trips offshore from June through September, with the best fishing in June and July. Target species for these trips are mako, blue, thresher and porbeagle sharks.

In 2003, 164,000 anglers made 361,000 fishing trips to the marine waters off New Hampshire (NMFS, 2003). Of these saltwater anglers, 43 percent were visitors from out-of-state. It is estimated that these saltwater anglers generated some $59.3 million in direct and indirect retail sales related to their fishing in New Hampshire in 2001 (ASA, 2002). The marine recreational fishing services sector provided some 1,103 jobs in the state in 2001.

**Table 9.3 New Hampshire Demographic Profile.** Source: U.S. Census, 1990 and 2000

| New Hampshire | 1990 | 2000 |
|---|---|---|
| **Population:** | **1,109,252** | **1,235,786** |
| **Education:** | | |
| High school graduates (25 years or older) | 82.2% | 87.4% |
| **Employment:** | | |
| Labor force (16 years and over) | 71.9% | 70.5% |
| Unemployment Rate | 6.2% | 3.8% |
| Median Household Income | $36,329 | $49,467 |
| Individuals below the poverty line* | 6.4% | 6.5% |
| **Employment in some industry sectors:** | | |
| Farming, fishing, forestry & mining | 1.5% | 0.9% |
| Construction | 7.1% | 6.8% |
| Manufacturing | 22.5% | 18.1% |
| Wholesale trade | 4.0% | 3.6% |
| Retail | 17.6% | 13.7% |
| Education, health & social services | 22.6% | 20.0% |
| Arts, recreation, lodging & food services | 1.2% | 6.9% |

*U.S. Census uses data from 1989 and 1999 to estimate these values.

### 9.4.3 Massachusetts

Commercial fisheries in Massachusetts are diverse, and range from small-scale inshore small-boat fisheries for lobster and clams, to offshore scallops, groundfish dragging, and longline fishing for HMS species. In 2003, New Bedford, Massachusetts ranked eighth in the United States for the weight of fish landed, and first for value with ex-vessel sales, bringing in 176.2 million dollars (NMFS, 2004). In the same year, Gloucester ranked twelfth in weight of fish landed and thirteenth in ex-vessel value. Due to the number of HMS permit holders and the relative importance of commercial and recreational fisheries to the Commonwealth, community profiles for both New Bedford and Gloucester were originally developed for the 1999 HMS FMP and have been included below.

The population in the Commonwealth of Massachusetts increased from 6 million people to 6.3 million people over the past decade (Table 9.4). The majority of individuals 25 years and older have a high school diploma and/or a graduate level degree. The percentage of employed individuals and individuals below the poverty line has remained about the same in the past decade, but there has been a slight decline in the unemployment rate, almost two percent. Employment in the farming, fishing, forestry, and mining industries has declined over the last decade. The arts, recreation, lodging, and food services industries are the only industries that expanded.

Massachusetts holds the greatest number of commercial tuna permits with 1,601 vessels permitted in 2005 (Table 9.36). In addition, Gloucester has the greatest concentration of commercial tuna permit holders with 106 vessels permitted (Figure 9.4). Massachusetts is ranked fourth in the greatest number of swordfish permit holders with just over nine percent of the total swordfish permit holders residing in Massachusetts (Table 9.39). In addition to swordfish, there are 17 directed and incidental shark permit holders (Table 9.38). Boston has the greatest concentration of HMS permitted dealers with New Bedford and New York City in second and third for the greatest number of HMS dealers (Table 9.37 and Figure 9.5).

**Table 9.4 Massachusetts Demographic Profile.** Source: U.S. Census, 1990 and 2000

| Massachusetts | 1990 | 2000 |
|---|---|---|
| **Population:** | **6,016,425** | **6,349,097** |
| **Education:** | | |
| High school graduates (25 years or older) | 80.0% | 84.8% |
| **Employment:** | | |
| Labor force (16 years and over) | 67.8% | 66.2% |
| Unemployment Rate | 6.7% | 4.6% |
| Median Household Income | $36,952 | $50,502 |
| Individuals below the poverty line* | 8.9% | 9.3% |
| **Employment in some industry sectors:** | | |
| Farming, fishing, forestry & mining | 1.2% | 0.4% |
| Construction | 5.5% | 5.5% |
| Manufacturing | 18.1% | 12.8% |
| Wholesale trade | 4.1% | 3.3% |
| Retail | 16.2% | 11.0% |
| Education, health & social services | 28.0% | 23.7% |
| Arts, recreation, lodging & food services | 1.1% | 6.8% |

*U.S. Census uses data from 1989 and 1999 to estimate these values.

In 2003, marine recreational fishing in Massachusetts attracted an estimated 1,017,000 anglers making 4,569,000 fishing trips in both state and Federal waters (NMFS, 2004b). Approximately, 344,000 (34 percent) of the anglers were from out of state. Direct and indirect retail sales generated by marine recreational fishermen in Massachusetts in 2001 were estimated to be $320.7 million (ASA, 2002). The marine recreational fishing industry generated 5,423 jobs in the Commonwealth in 2001. Shark fishing, largely catch-and-release using light tackle, takes place in offshore waters (NMFS, 2003). Recreational vessels often travel 50 - 100 miles out to their fishing grounds and most shark trips are 10 - 12 hours in duration, with some extending to an overnight trip, or even two- or three-day trips. Massachusetts residents held 557 charter/headboat permits in 2005. Sharks are usually taken incidental to bluefin tuna fishing, but a number of charterboat operators advertise shark fishing trips. The target shark species South and East of Cape Cod are mako, blue and porbeagle sharks and these species, as well as thresher, dusky, and tiger sharks are found throughout the Gulf of Maine.

HMS fishing tournaments are promoted, and participated in, by some charterboat operators (NMFS 2003). Examples of these tournaments include Boston Big Game and Monster Shark Tournaments (Oak Bluffs); Nantucket Angler's Club (Nantucket); Fisherman Outfitter's

Cutty Hunk Shootout (Cutty Hunk); and Giant Bluefin Tournament (Hyannis). Charterboat operations advertising shark fishing trips are based in Newburyport, Rockport, Gloucester, Boston, Quincy, Chatham, Harwich Port, South Yarmouth, Hyannis, Mashpee, East Falmouth, Oak Bluffs, Edgartown, Vineyard Haven, Menemsha, Mattapoisett, Fairhaven, New Bedford, and Westport Point.

#### *9.4.3.1 Gloucester, Massachusetts*

In 1990, the population of Gloucester was 28,716. There was a minimal population increase of approximately 1,500 individuals between 1990 and 2000 (Table 9.5). Forty percent of the population was between the ages 20 – 44 years old in 2000. The median age of the Gloucester population has gotten older by five years, rising to 40 years old in 2000. There is a slightly larger percentage of females in the Gloucester population, 48 percent males to 52 percent females. In 2000, the number of households is two and half times greater than in 1990, but the total number of housing units increased only slightly, from 13,125 to 13,958.

A greater percentage of the 16 years and older population was an active part of the labor force during 2000 (Table 9.5). While the percentage of unemployed declined, the percentage of individuals below the poverty line increased in the last decade. The greatest source of employment in 1990 was the technical and administrative industries. In 2000, 36 percent of the population was employed in the managerial and professional industries. The number of businesses engaged in the forestry, fishing, hunting, mining, and agriculture industries declined over the last decade from 3.9 percent to 2.5 percent. The greatest percentage of businesses was engaged in education, health, and social service.

Gloucester residents hold the largest number of commercial tuna permits with 106 permits issued in 2005 (Table 9.36 and Figure 9.4). The Atlantic bluefin tuna purse seine fishery lasts for a short period of time each year and is limited by regulation to five vessels. One purse seine vessel operates out of Gloucester. The economic health of the purse seine fishery is heavily dependent on bluefin tuna prices and, concomitantly, on the value of the Japanese yen. Finding crew is not a problem; many of the current crew members have had their berths for years. The owner and many of the crew of purse seine vessels, even some who do not reside in the community, are well-integrated through kinship ties into the fishing community. They see themselves as responsible for creating the bluefin tuna fishery and the fleet enjoys the respect of the extended fishing communities in Gloucester (Wilson *et al*., 1998).

There are also a large number of HMS dealers in the Gloucester area, licensed to purchase and sell tuna, sharks, and swordfish (Table 9.37 and Figure 9.5). Bluefin tuna dealers in Gloucester work with a large number of vessels of various types, including purse seine vessels. Most bluefin tuna are sold on consignment, and some dealers give a minimum guarantee on fish they take. Personal networks are very important and the competition can be intense. During the bluefin tuna season, some transient dealers come to Gloucester. The largest dealer buys from the purse seine vessels because it is one of the few dealers that is able to finance the transaction. This business has only one full-time employee and up to seven seasonal employees, who may be fishermen seeking alternative employment. The dealer to whom the purse seine vessels sell their bluefin tuna heavily depends on those vessels to maintain its current profit margins. However, this dealer reports that the structure of its business is such that there

would be no lost jobs even if the purse seine landings were significantly reduced, since BFT reallocated to another gear category would likely be handled by the same dealer (Wilson *et al.*, 1998).

**Table 9.5 Demographic Profile of Gloucester, Massachusetts.** Source: U.S. Census, 1990 and 2000.

| Demographics | 1990 | 2000 |
|---|---|---|
| Total Population | 28,716 | 30,273 |
| **Sex** | | |
| Male | 48.2% | 47.9% |
| Female | 51.8% | 52.1% |
| **Age** | | |
| Median Age | **35.5** | **40.2** |
| < 20 | 25.2% | 23.9% |
| 20 - 44 | 39.3% | 34.4% |
| 45 - 64 | 20.2% | 26.1% |
| > 65 | 15.4% | 15.6% |
| **Race** | | |
| White | 99.4% | 97.0% |
| Black or African American | 0.2% | 0.6% |
| American Indian & Alaska Native | 0.1% | 0.1% |
| Asian | 0.2% | 0.7% |
| Other | 0.1% | 0.5% |
| **Household** | | |
| **Total** | **11,550** | **29,913** |
| Family households | 66.1% | 62.7% |
| Nonfamily households | 33.9% | 37.3% |
| Average household size | 2.49 | 2.38 |
| Average family size | 3.11 | 3.00 |
| **Housing Occupancy** | | |
| Total housing units | 13,125 | 13,958 |
| Vacant housing units | 11.8% | 9.8% |
| **Housing Tenure** | | |
| Owner-occupied housing units | 57.8% | 59.7% |
| Renter-occupied housing units | 42.2% | 40.3% |

| Gloucester, Massachusetts | 1990 | 2000 |
|---|---|---|
| **Population:** | 28,716 | 30,273 |
| **Education:** | | |
| High school graduates (25 years or older) | 75.6% | 85.7% |
| **Economic Characteristics** | | |
| Labor force (16 years and over) | 62.6% | 66.1% |
| Unemployed | 4.5% | 3.2% |
| Median Household Income | $ 32,690 | $ 47,722 |
| Individuals below the poverty line | 7.5% | 8.8% |
| **Employment in some industry sectors:** | | |
| Managerial/professional | 26.8% | 36.1% |
| Technical/administrative | 28.0% | 25.4% |
| Construction, Production, Maintenance, & Transportation | 2.8% | 21.4% |
| Farming, fishing, forestry, & mining | 13.0% | 2.0% |
| **Industry** | | |
| Forestry, fishing, hunting, mining, and agriculture | 3.9% | 2.5% |
| Construction | 5.5% | 7.1% |
| Manufacturing | 22.1% | 16.7% |
| Wholesale trade | 4.7% | 3.6% |
| Retail trade | 16.2% | 10.8% |
| Education, health & social services | 14.1% | 20.2% |
| Arts, recreation, lodging & food services | 1.4% | 9.2% |

Commercial rod and reel tuna fishing (with General category permits) as well as recreational rod and reel tuna fishing (with Angling category permits) drive a large shoreside economy, including the sale and repair of tackle, vessels, and engines, and the sale of supplies such as bait and ice. The rod and reel fishery also supports general tourist services such as restaurants and hotels. This community is competing with many other possible tourist destinations for tuna fishermen, increasing their dependence on the bluefin tuna as a prominent attraction. Vulnerabilities stem from the seasonal nature of tuna fishing in Gloucester and the general dependence of tuna fishing on the health of the economy. According to those interviewed, seasonality makes business planning, as well as finding and retaining trained employees, more difficult (Wilson, *et al.*, 1998).

The bluefin tuna rod and reel fishery attracts wealthier fishermen than the fisheries for many other species. The bluefin tuna fishing experience is not always a family activity, but it is often the attraction that brings an adult, and hence the rest of the family, to the community. It attracts experienced and amateur fishermen alike, as well as adventure seekers who are often outdoors enthusiasts in other arenas. Gloucester used to have an annual bluefin tuna tournament organized by the largest of the recreational marinas. However, limited availability of fish has canceled the tournament in past years (Wilson *et al.*, 1998). Most fishing tourists who come to Gloucester are from the northeastern United States. These "weekend warrior" bluefin tuna

fishermen have an important impact on the community's economy, particularly weekend fuel sales (Wilson, *et al*., 1998).

The Gloucester charter fleet follows a standard policy that, when a bluefin tuna is landed, the fish belongs to the vessel and the charter for the day is free, since the vessel operator may sell the fish to the dealer (Wilson *et al*., 1998). Serious customers want to target bluefin tuna, even though there is a low probability that they will catch them. Very often when the General category is open, charter captains will take an extra mate and fish for bluefin tuna without paying passengers. They feel that having no amateurs on board enhances their chances of actually landing a fish.

Of the three retail tackle shops in Gloucester, only one specializes in offshore fishing. Eighty-five percent of its business is related to both commercial and recreational bluefin tuna fishing. Bluefin tuna and shark fishing gear is very expensive; reels cost $800 to $1,000 and are useful for shark and bluefin tuna only. Fishermen in Gloucester often choose high quality gear and show little concern about price (Wilson *et al*., 1998).

In the HMS rod and reel fishery of Gloucester, sharks are usually not the primary target species, but they are encountered incidentally to tunas. Most sharks caught in Gloucester recreational fisheries are released (Wilson *et al*., 1998). Researchers noted tension and distance between the recreational and commercial fishing communities, as recreational fishermen tend to believe that commercial fishing is to blame for the decline in local shark populations.

#### *9.4.3.2 New Bedford, Massachusetts*

New Bedford is a long and narrow city along the coast of southern Massachusetts, facing the city of Fairhaven across the water. New Bedford faces problems associated with its urban setting, such as low education levels and high unemployment. The working waterfront and its industry have become increasingly important economically as the manufacturing base of the city has declined. With multiplier effects, the city's economy may benefit from the fishing industry by $500 million (Wilson *et al*., 1998). Thousands of people are employed in supporting services such as processing, manufacturers of equipment, transport companies, supply houses, oil companies, welders, pipe fitters, stores, settlement houses, *etc*. Once the "whaling capital of the world," New Bedford still possesses one of the largest fishing fleets in the eastern United States (NOAA, 1996). New Bedford ranked seventh in the United States for the weight of fish landed in 2004, and first for value with ex-vessel sales bringing in 206.5 million dollars (NMFS, 2005a).

New Bedford has learned a great deal about how to survive crises in fisheries. Many of the members of this fishing community are descended from Portuguese fishing families and kinship networks are an extremely important influence on employment patterns in the fishing industry (NMFS, 1999a). The Portuguese families are very close and many trace their families back to fishermen in Portugal. The Fishermen's Family Assistance Center opened in 1994 with help from the Federal government in response to the collapse in the groundfish fishery. Thirty-two vessels in New Bedford were removed through the buyback program. With help from the Center, ex-fishermen are finding jobs, particularly in the marine trade, computer, and trucking industries. The marine trade jobs tend to be in New York, New Jersey, and Massachusetts.

Other industries in New Bedford have been supportive of the fishermen through the crisis and extended family networks have helped minimize social impacts (Wilson, *et al*., 1998).

Between 1990 and 2000, New Bedford experienced a decrease in its population of over 6,000 individuals — 99,922 in 1990 to 93,768 in 2000 (Table 9.6). The median age of the population increased slightly, from 33 to 36 years old. The 2000 age distribution remains relatively similar to the age distribution in 1990 with the greatest percentage of individuals in the 20 to 44 years age group. The percentage of females in the population is larger than the percentage of males in both 1990 and 2000 by 6 percent. The number of total households increased by 42 percent in the last decade, which could be attributed to an increase in the number of non-family households.

The number of high school graduates increased by almost 8 percent in the 1990s (Table 9.6). The size of the 16 years and older labor force increased, and the percentage of unemployed declined, but the percentage of individuals below the poverty line increased by almost 4 percent. A large percentage of New Bedford residents are employed in the construction, production, maintenance, and transportation industries. This was a significant increase over the last decade in this sector, where the greatest percentage of employment was in the technical, administrative, and sales industries throughout the 1990s. The percentage of businesses engaged in the forestry, fishing, hunting, and agriculture industries declined by almost a third throughout the 1990s. In 2000, the major industries were manufacturing and education, health, and social services.

**Table 9.6 Demographic Profile of New Bedford, Massachusetts.** Source: U.S. Census, 1990 and 2000.

| Demographics | 1990 | 2000 |
|---|---|---|
| Total Population | 99,922 | 93,768 |
| **Sex** | | |
| Male | 46.7% | 47.1% |
| Female | 53.3% | 52.9% |
| **Age** | | |
| Median Age | **32.6** | **35.9** |
| < 20 | 29.1% | 27.4% |
| 20-44 | 35.4% | 35.6% |
| 45- 64 | 18.0% | 20.1% |
| > 65 | 17.4% | 16.7% |
| **Race** | | |
| White | 87.8% | 78.9% |
| Black or African American | 3.8% | 4.4% |
| American Indian and Alaska Native | 0.4% | 0.6% |
| Asian and Pacific Islander | 0.3% | 0.7% |
| Other | 7.6% | 9.5% |
| **Household** | | |
| **Total** | **38,646** | **91,782** |
| Family households | 69.0% | 63.1% |
| Nonfamily households | 31.0% | 39.9% |
| Average household size | 2.59 | 2.40 |
| Average family size | 3.15 | 3.01 |
| **Housing Occupancy** | | |
| Total housing units | 41,760 | 41,511 |
| Vacant housing units | 7.1% | 8.0% |
| Housing Tenure | | |
| Owner-occupied housing units | 43.8% | 43.8% |
| Renter-occupied housing units | 56.2% | 56.2% |

| New Bedford, Massachusetts | 1990 | 2000 |
|---|---|---|
| **Population:** | 99,922 | 93,678 |
| **Education:** | | |
| High school graduates (25 years or older) | 49.7% | 57.6% |
| **Economic Characteristics** | | |
| Labor force (16 years and over) | 52.1% | 57.7% |
| Unemployed | 7.2% | 5.0% |
| Median Household Income | $ 22,647 | $ 27,569 |
| Individuals below the poverty line | 16.8% | 20.2% |
| **Employment in some industry sectors:** | | |
| Managerial/professional | 17.0% | 20.8% |
| Technical, Administrative, & Sales | 27.2% | 23.6% |
| Construction, Production, Maintenance, & Transportation | 2.6% | 34.9% |
| Farming, fishing, forestry, & mining | 11.9% | 1.0% |
| **Industry** | | |
| Forestry, fishing, hunting, mining, and agriculture | 3.16% | 1.1% |
| Construction | 6.1% | 7.1% |
| Manufacturing | 27.8% | 20.7% |
| Wholesale trade | 4.3% | 4.4% |
| Retail trade | 17.0% | 12.1% |
| Education, health & social services | 15.4% | 20.9% |
| Arts, recreation, lodging & food services | 0.7% | 7.4% |

New Bedford also has a large number of residents with a commercial tuna permit (Table 9.36 and Figure 9.4). All pelagic longline vessels that land HMS in New Bedford are large "distant water" vessels. The fleet consists of large vessels that follow swordfish throughout their migrations. These vessels make long trips, are relatively expensive to operate, and are highly specialized to distant water fishing (*i.e.*, they have large holds and additional fuel capacity). Respondents to the Wilson *et al*. study report that these large distant water vessels have developed a minimal history in other U.S. fisheries, though it is fairly easy for both the vessels and captains to find work in foreign longline fisheries. Many of these vessels already moved from the Atlantic Ocean to the Pacific Ocean, and others are currently for sale (Wilson *et al*., 1998). In summer months, the remaining large distant water vessels fish on the Grand Banks and land swordfish in New England and Canadian ports. During winter months, their product is initially landed in San Juan, Puerto Rico and transhipped to New Bedford and other destinations. San Juan, Puerto Rico is the only international airport in the Caribbean with the necessary lift capacity to tranship their product. Long storage time at sea means that this fleet produces relatively lower quality swordfish, so they compete directly with cheaper imports for the low-end markets. Participants report concern over expenses and the decreased price of swordfish.

Because of these problems and the pressures brought about by increased regulation and several decreasing fish stocks, the distant water fleet has responded by staying out at sea for longer periods (Wilson *et al*., 1998). This has affected family life; wives of fishermen do not want to raise children essentially alone. While some members of this fleet, their suppliers, and their customers live in the New Bedford area, the distant water fleet is not attached to a geographical community in the same sense as other fleets. Participants in this fleet tend to be fairly isolated within the communities where they live, even when those communities are strongly integrated fishing communities like New Bedford. The wives of captains and crew who participate in the distant water fishery generally do not know each other well. New Bedford has a fishermen's wives association but it is mainly for older Portuguese women whose husbands are scallopers and draggers "who do only 14-day trips" (Wilson *et al*., 1998). New Bedford respondents not associated with the distant water fleet report that they see it as socially distant from the rest of the community. This isolation from other fishing people, and the length of the trips, has placed a strain on the family life of participants.

The distant water fleet has used its longer reach to recruit crew members from overseas, particularly the West Indies, thus avoiding crew supply problems typical of other sectors of the longline fleet. The range of these vessels over many different waters makes them particularly dependent on the skill and experience of their captains. New Bedford does not offer these captains alternative employment outside of the fishing industry at comparable income levels (Wilson, *et al*., 1998).

A dealer in the New Bedford area who purchases from the distant water fleet does $15 million to $20 million worth of business each year, including imports. About half of the dealer's purchases are domestic. Overall, his business consists of 60 percent swordfish, 15 percent tunas (yellowfin, bigeye, bluefin), ten percent lobster, and 15 percent other (sharks, bait, *etc.*). The dealer employs 40 to 65 people depending on supply conditions (Wilson *et al*., 1998). There are also a large number of HMS dealers in Gloucester licensed to purchase and sell tunas, sharks, and swordfish (Figure 9.5).

When fishing is disrupted through closures, the dealers experience large labor fluctuations. Even the increased reliance on imports has not completely solved this problem. When they make an effort to buy from U.S. vessels in distant waters, special arrangements and timing are required to get the fish to market and maintain vessels. The fishermen have to unload close to an international airport with lift capacity, which in the Caribbean means San Juan. The dealers have to hire people to unload any vessel landings in San Juan, and send supervisors so that the fish is kept cold, weighed properly and counted correctly. Then they need to arrange for cargo departure and negotiate freight weight. These activities can be easily disrupted by short notice of seasonal closures and other regulatory decisions.

Of the five vessels that hold permits to fish in the bluefin tuna purse seine fishery, four are associated with New Bedford. One of these vessels is owned by a resident while the three other vessels are owned by non-residents. All four land their catch in New Bedford and have crew members who live in the city. The owners and many of the crew of the purse seine vessels, even some who do not reside in the community, are well integrated through kinship ties into the fishing community. They are generally thought of as being responsible for creating the bluefin tuna fishery, and the fleet enjoys the respect of extended fishing communities in New Bedford (Wilson *et al*., 1998). Three of these vessels do nothing else but fish for bluefin tuna and are tied up at the dock for the rest of the year. The fourth vessel holds a scallop permit as well. Many of the current crew members have had their berths for years. In 1998, these vessels employed 26 crew members combined, 24 percent less than they did at the height of this fishery in the 1980s. Many of these crew members are family and almost all have been with these vessels for a long time. The average age is considerably older than that of most fishing crews. When the vessels are tied up, the crew members collect unemployment and do odd jobs. A greater percentage of the crew members' wives worked outside the home in the 1990s compared to the 1980s (Wilson *et al*., 1998).

The purse seine fleet's economic health is heavily dependent on bluefin tuna prices and, concomitantly, on the value of the Japanese yen. The New Bedford dealer who buys bluefin tuna from the purse seine fleet has been in business since the early 1960s. This dealer currently depends on the purse seiners to maintain profit margins. However, he reports that the structure of his businesses is such that there would be no lost jobs even if the purse seine landings were to be significantly reduced, since any bluefin tuna reallocated to other commercial categories would likely be handled by the same dealer. The business employs 200 people and would not lay off workers if the bluefin tuna quota were cut. While bluefin tuna currently makes up only 1.25 percent of their gross dollars, it accounts for 25 percent or more of their net profit.

The recreational tuna fishing industry in New Bedford is a highly diverse one, with an increasing emphasis on providing an enjoyable fishing experience for all ages. Fishery participants feel that bluefin tuna fishing is an adventure, and the prize is an important aspect of the experience. It attracts experienced and amateur fishermen alike, as well as adventure seekers who are often outdoors enthusiasts in other arenas. Most charterboats in the New Bedford area are owner-operated. Respondents report that it can be hard to find suitable crew members because the business is seasonal and they are unwilling to hire unemployed commercial fishermen (Wilson *et al*., 1998).

Recreational fishing in these communities drives a much larger economy, including the marine trades (tackle, vessels, engines, *etc.*), suppliers of bait and ice, and general tourist services such as restaurants and hotels. These communities are competing with many other possible tourist destinations, increasing their dependence on large, well-known fish that act as prominent attractions. Economic vulnerabilities stem from the seasonal nature of recreational fishing in these communities and recreational fishing's general dependence on the health of the economy. The seasonality of this fishery makes business planning, as well as training and keeping employees, more difficult. Respondents emphasized that these communities depend on potential customers' expectation that they will have a reasonable chance to land a fish (Wilson *et al.*, 1998).

Shark tournaments are also an important component in promoting business in the New Bedford area, attracting numerous repeat customers. They bring in curious people because sharks are considered a dangerous and exciting fish. Recreational shark fishing in New Bedford is mainly catch-and-release (Wilson *et al.*, 1998). However, respondents argue that New Bedford is not the appropriate area for catch-and-release tournaments, because the length of the trip (100 miles) makes taking observers impractical. Although shark fishing is comparatively less important to recreational fishermen in this community, some customers are attracted by the particular challenge of shark fishing. Recreational fishermen throughout the area tend to believe that commercial fishing is to blame for the decline in shark populations.

### 9.4.4 Rhode Island

Rhode Island's population increased from just over one million people in 1990 to 1.1 million people in 2000 (Table 9.7). The percentage of individuals 25 years and older with a high school diploma and/or some graduate level degree has increased by three percent. The percentage of employed individuals and the unemployment rate declined slightly, but the number of individuals below the poverty line increased from 9.6 percent to almost 12 percent. Employment in the farming, fishing, forestry, and mining industries has declined with the education, health, and social services industries providing the greatest employment opportunities in 2000. Due to the relatively low involvement in the HMS fisheries in the past, there are no community profiles describing the relationship of HMS fisheries to any Rhode Island communities.

Over four and half percent of the commercial tuna permit holders reside in Rhode Island (Table 9.36) with a concentration of permit holders residing in Wakefield (Figure 9.1). Nine shark permit holders and 27 swordfish permit holders are located in the state of Rhode Island (Table 9.38 and Table 9.39). Communities involved with the commercial fisheries are Warwick, Little Compton, Newport, Tiverton, Block Island, Narragansett, Peace Dale, Point Judith, South Kingstown, Wakefield and West Kingstown. Rhode Island also has 45 HMS dealers, operating in Newport, Point Judith, Middletown, Wakefield, Narragansett, Peace Dale, South Kingstown, and Block Island (Table 9.37 and Figure 9.5). In the future, NMFS may want to consider developing a HMS-related community profile for Wakefield, Rhode Island due to the number of residents involved in the commercial tuna and swordfish fisheries according to the information from the HMS permit databases.

**Table 9.7 Rhode Island Demographic Profile.** Source: U.S. Census, 1990 and 2000

| Rhode Island | 1990 | 2000 |
|---|---|---|
| **Population:** | **1,003,464** | **1,048,319** |
| **Education:** | | |
| High school graduates (25 years or older) | 72.0% | 78.0% |
| **Employment:** | | |
| Labor force (16 years and over) | 66.1% | 64.6% |
| Unemployment Rate | 6.6% | 5.6% |
| Median Household Income | $32,181 | $42,090 |
| Individuals below the poverty line* | 9.6% | 11.9% |
| **Employment in some industry sectors:** | | |
| Farming, fishing, forestry & mining | 1.3% | 0.5% |
| Construction | 5.7% | 5.4% |
| Manufacturing | 22.7% | 16.4% |
| Wholesale trade | 3.7% | 3.4% |
| Retail | 17.5% | 12.1% |
| Education, health & social services | 25.0% | 23.0% |
| Arts, recreation, lodging & food services | 1.2% | 8.6% |

*U.S. Census uses data from 1989 and 1999 to estimate these values.

In 2004, some 351,000 anglers took 1,444,000 saltwater fishing trips for all species of fish in the state of Rhode Island (NMFS, 2005a). Of these marine anglers, about 65 percent were from out-of-state. In 2005, 831 Rhode Island residents held an HMS angling permit (Table 9.34). Retail sales generated by marine anglers in Rhode Island in 2001 are estimated to total $86.2 million and 1,382 jobs were generated in the marine recreational fishing industry (ASA, 2002). Recreational shark fishing from Rhode Island is seasonal between late June and October, with a peak in late August (NMFS 2003). A variety of shark species are available with the most common being mako sharks between 60 - 100 pounds. After mako, thresher, blue, dusky and sandbar sharks are the most common species caught by anglers. Light tackle is the gear preferred for shark fishing by the charter operators and most private boat fishermen, and catch-and-release is normal in the fishery.

In Rhode Island, the number of charter/headboat permit holders increased from 94 in 2003 to 143 in 2005 (Table 9.35). Charter operators offering shark fishing trips are based in Block Island, Point Judith, Little Compton, Warwick, West Greenwich, Newport, and Westerly. Charter trips for sharks are usually to the deep waters South of Rhode Island and the eastern tip of Long Island, last at least 10 hours and, in August, are often overnight trips. On the ten-hour trips with five anglers onboard, the average fee was on the order of $800 in 2003 (NMFS, 2003). This fee is comparable to those charged in the other New England states. Fees for participation in a five-day fishing tournament are on the order of $4,500 for a fully rigged and provisioned boat with skipper and mate (the angler is responsible for the payment of the tournament fees, which can be in excess of $5,000 per angler).

### 9.4.5 Connecticut

Connecticut's population has increased by 3.5 percent between 1990 and 2000 (Table 9.8). The percentage of individuals 25 years and older with a high school diploma and/or a

graduate level degree has increased by about five percent. The percentage of employed individuals has declined, and correspondingly, the unemployment rate and individuals below the poverty line have increased over the past decade. Employment in the farming, fishing, forestry, and mining has declined with the education, health, and social services industries providing the greatest employment opportunities in 2000.

In general, Connecticut's involvement in the commercial fishery has been minimal. There are 170 commercial tuna permit holders living in the state (Table 9.36) with two permit holders for the shark and swordfish permits (Table 9.38 and Table 9.39). Only two HMS permitted dealers are located in Connecticut (Table 9.37). The communities involved in the commercial shark fishery are New London and Old Lyme. Due to the relatively minimal involvement with HMS fisheries, there are no community profiles for the state of Connecticut.

In 2003, some 369,000 anglers took 1,579,000 saltwater fishing trips for all species of fish (NMFS, 2004b). Of these marine anglers, about 18 percent were from out-of-state. In 2005, 1,080 Connecticut residents held an HMS angling permit (Table 9.34). Recreational shark fishing is conducted throughout Long Island Sound, but primarily from the eastern ports in the state from which offshore waters can be easily reached. The number of charter/headboats permit holders in Connecticut has increased from 62 in 2003 to 110 in 2005 (Table 9.35). Charterboats advertising shark fishing trips operate from Milford, New London, Norwalk, Old Lyme, Saybrook, Stonington and Westport. The recreational fishery is principally a catch-and-release fishery using light tackle.

**Table 9.8 Connecticut Demographic Profile.** Source: U.S. Census, 1990 and 2000

| Connecticut | 1990 | 2000 |
|---|---|---|
| **Population:** | **3,287,116** | **3,405,565** |
| **Education:** | | |
| High school graduates (25 years or older) | 79.2% | 84.0% |
| **Employment:** | | |
| Labor force (16 years and over) | 69.0% | 66.6% |
| Unemployment Rate | 5.4% | 5.3% |
| Median Household Income | $41,721 | $53,935 |
| Individuals below the poverty line* | 6.8% | 7.9% |
| **Employment in some industry sectors:** | | |
| Farming, fishing, forestry & mining | 1.3% | 0.4% |
| Construction | 5.9% | 6.0% |
| Manufacturing | 20.5% | 14.8% |
| Wholesale trade | 4.2% | 3.2% |
| Retail | 15.4% | 11.2% |
| Education, health & social services | 24.8% | 22.0% |
| Arts, recreation, lodging & food services | 1.1% | 6.7% |

*U.S. Census uses data from 1989 and 1999 to estimate these values.

### 9.4.6 New York

The state of New York's population increased by nearly one million people in the decade between 1990 and 2000 (Table 9.9). The percentage of individuals 25 years and older with a high school diploma and/or some graduate level degree has increased by about five percent. The percentage of employed individuals has declined slightly, while both the unemployment rate and individuals below the poverty line have increased over the past decade. Employment in the farming, fishing, forestry, and mining industries has declined with the education, health, and social services industries providing the greatest employment opportunities in 2000.

Twenty-one individuals holding an HMS shark permit and 29 individuals holding a swordfish permit reside in New York (Table 9.38 and Table 9.39). In addition to the shark and swordfish permit holders, there are also 327 commercial tuna permit holders in New York (Table 9.36). New York has the third greatest number of HMS dealer permit holders (86 total) with a large concentration of dealers located in New York City and the surrounding areas (Table 9.37 and Figure 9.5). The communities participating in the shark commercial and recreational fisheries include Freeport, Lawrence, Ammagansett, Brightwaters, East Hampton, East Quogue, Greenport, Hampton Bays, Islip, Montauk, Oakdale, Brooklyn, Riverhead, Seaford, Port Jefferson, Babylon, Hauppauge, Staten Island, Southold, and Wantagh. While no HMS community profiles have been developed for New York, a profile should be developed for Montauk due to the residents' significant participation in the commercial tuna, charter/headboat and the number of shark permit holders.

**Table 9.9 New York Demographic Profile.** Source: U.S. Census, 1990 and 2000

| New York | 1990 | 2000 |
|---|---|---|
| **Population:** | **17,990,455** | **18,976,457** |
| **Education:** | | |
| High school graduates (25 years or older) | 74.8% | 79.1% |
| **Employment:** | | |
| Labor force (16 years and over) | 63.6% | 61.1% |
| Unemployment Rate | 6.9% | 7.1% |
| Median Household Income | $40,927 | $43,393 |
| Individuals below the poverty line* | 13.0% | 14.6% |
| **Employment in some industry sectors:** | | |
| Farming, fishing, forestry & mining | 1.3% | 0.6% |
| Construction | 5.2% | 5.2% |
| Manufacturing | 14.7% | 10.0% |
| Wholesale trade | 4.2% | 3.4% |
| Retail | 14.9% | 10.5% |
| Education, health & social services | 27.9% | 24.3% |
| Arts, recreation, lodging & food services | 1.5% | 7.3% |

*U.S. Census uses data from 1989 and 1999 to estimate these values.

In 2004, some 677,000 anglers took 4,743,000 saltwater fishing trips for all species of fish in both state and Federal waters (NMFS, 2005a). The majority of these anglers are residents of New York State, with about 11 percent were from out-of-state. In 2005, New York had the

fourth greatest number of HMS angling permit holders with 2,391 permitted vessels (Table 9.34) and a large concentration of these anglers residing in New York City (Figure 9.2). The Amecian Sportfishing Association (ASA) estimated that, in 2001, saltwater angling generated some $389.3 million in New York State in retail sales and some 5,122 jobs in the marine recreational fishing industry (ASA, 2003). Shark fishing by anglers appears to be largely catch-and-release, using light tackle, and tends to be incidental to tuna and billfish fishing offshore. In New York State, there are 379 charter/headboats were permitted for HMS fishing in 2005 (Table 9.35). A number of charterboat operators advertise shark fishing as part of their offerings. A large percentage of the 41 charterboats operating out of Montauk advertise shark fishing either as an occasional exciting catch or offering shark fishing trips offshore. Montauk is positioned well for offshore trips as it lies only 20 – 40 miles from the edge of deep water and Gulf Stream eddies. Connecticut and Rhode Island boats on the other hand have to travel at least 60-100 miles to reach the prime fishing waters for tunas and sharks.

### 9.4.7 New Jersey

Between the 1990 Census and the 2000 Census, New Jersey's population increased from 7.7 million people to 8.4 million people, respectively (Table 9.10). The percentage of individuals 25 years and older with a high school diploma and/or some graduate level degree has increased by about five percent. The percentage of employed individuals has declined slightly, while the unemployment rate remained about the same and individuals below the poverty line increased over the past decade. As with many of the other states, employment in the farming, fishing, forestry, and mining industries has declined, whereas the education, health, and social services industries provided the greatest employment opportunities in 2000.

While both Barnegat Light and Brielle have already been profiled for HMS fisheries, NMFS may want to also consider an HMS profile for Cape May due to the number of HMS angling, charter/headboat, shark and swordfish permits located in the community.

In 2005, there were 357 commercial tuna permit holders in the state of New Jersey (Table 9.36). New Jersey has the second greatest number of shark permit holders living within the state, second to Florida (Table 9.38) with significant concentrations of shark permit holders living in Barnegat Light and Cape May (Figure 9.6). New Jersey is also home to 50 swordfish permit holders (Table 9.39) with many of these permit holders in Barnegat Light and Cape May (Figure 9.7). Fifty-six HMS dealers are also located in New Jersey (Table 9.37).

Marine recreational fishing attracted 1,120,000 participants to New Jersey in 2004 (NMFS, 2005a). These anglers, collectively, made 6,580,000 saltwater fishing trips during the year. Of these anglers, 33 percent were from out-of-state, and about two percent from non-coastal counties in New Jersey. In 2005, New Jersey has the greatest number of HMS angling permit holders at 3,439 (Table 9.34) with large concentrations of these anglers residing in Point Pleasant Beach, Brick, Toms River, Forked River, and Tuckerton (Figure 9.2). The ASA estimated that saltwater angling-related retail sales in New Jersey were some $448.7 million in 2001. The marine recreational fishing industry provided some 7,762 jobs in New Jersey in 2001 (ASA, 2002).

**Table 9.10 New Jersey Demographic Profile.** Source: U.S. Census, 1990 and 2000

| New Jersey | 1990 | 2000 |
|---|---|---|
| **Population:** | **7,730,188** | **8,414,350** |
| **Education:** | | |
| High school graduates (25 years or older) | 76.9% | 82.1% |
| **Employment:** | | |
| Labor force (16 years and over) | 67.4% | 64.1% |
| Unemployment Rate | 5.7% | 5.8% |
| Median Household Income | $40,927 | $55,146 |
| Individuals below the poverty line* | 7.6% | 8.5% |
| **Employment in some industry sectors:** | | |
| Farming, fishing, forestry & mining | 1.2% | 0.3% |
| Construction | 6.0% | 5.6% |
| Manufacturing | 16.9% | 12.0% |
| Wholesale trade | 5.4% | 4.4% |
| Retail | 15.2% | 11.3% |
| Education, health & social services | 23.4% | 19.8% |
| Arts, recreation, lodging & food services | 1.7% | 6.9% |

*U.S. Census uses data from 1989 and 1999 to estimate these values.

The recreational fishery for sharks is primarily incidental to fishing for tuna and billfish. New Jersey is also second to Florida in the number of HMS charter/headboats permit holders with 578 permitted vessels in 2005 (Table 9.53). Many of the angling communities are also home to the charter/headboat permit holders, but also Cape May, and Ocean City (Figure 9.3). Of these party and charterboats, some advertise shark trips using light tackle during the summer and early fall (July-October) (NMFS, 2003). These trips go offshore between 25 and 60 miles to the heads of the canyons, and thus are full-day or overnight trips.

#### *9.4.7.1 Barnegat Light, New Jersey*

Barnegat Light is one of eleven municipalities on Long Beach Island, a large "barrier beach" island that helps form the seaward boundary of Barnegat Bay. This small town measures less than one square mile and is located on the northern end of the barrier island. The town is named after its famous lighthouse that guided ships for generations along the New Jersey coast. This lighthouse was replaced in 1855 with the second-tallest lighthouse in the United States operating until 1927 (NMFS, 2003). The building continues as both a community landmark and a navigation mark. The name Barnegat originates from "Barende-gat," a Dutch name meaning "inlet of breakers" (NMFS, 1999a). Prior to 1820, fishing operations and maritime trade were conducted in the small settlements on the mainland inside the chain of islands and sand bars fringing the New Jersey Coast (NMFS, 2003). Barnegat Inlet was one of the important channels to the open ocean, with a sheltered anchorage immediately inside the inlet, and ample resource for a fishing community. A lighthouse was built in 1824 to mark the entrance to the inlet. In 1995, the infamous inlet's fierce currents were tamed by a $45 million Army Corps of Engineers project that constructed a South jetty along with a three-quarter-mile beach and a fishing pier (NMFS, 1999a).

Barnegat Light has grown and changed in the decade between the 1990 and 2000 Censuses. The changes are reflected in two demographic dimensions. The first is a shift to higher education and higher qualification occupations and the second is a continued shift to an older, retired population. The change in age structure also signifies a change in the workforce and the source of household earnings. In 2000, there were 371 households with an average size of 2.05 persons per household (Table 9.11). Of these households, 233 (62.8 percent) received income in the form of earnings, while 202 households (54.4 percent) received income from Social Security (NMFS, 2003). One hundred and thirty households received retirement income (35.0 percent). For households receiving income from earnings, the average income was $63,373 in 1999[1]. The average Barnegat Light household with retirement income received $22,168 (plus appropriate Social Security payments). In comparison with New Jersey as a whole, employment earnings were less than the state average, while retirement income was above the state average. However, the median household income in Barnegat Light ($52,361) in 1990 was some $2,800 lower than the statewide median household income.

**Table 9.11 Demographic Profile of Barnegat Light.** Source: U.S. Census, 1990 and 2000.

| Demographics | 1990 | 2000 |
|---|---|---|
| Total Population | 681 | 764 |
| **Sex** | | |
| Male | 52.0% | 50.9% |
| Female | 48.0% | 49.1% |
| **Age** | | |
| Median Age | **50.9** | **54.9** |
| < 20 | 12.8% | 15.4% |
| 20-44 | 29.8% | 20.9% |
| 45-64 | 27.0% | 29.4% |
| > 65 | 30.4% | 34.3% |
| **Race** | | |
| White | 99.6% | 98.3% |
| Black or African American | 0.4% | 0.5% |
| American Indian and Alaska Native | 0.0% | 0.0% |
| Asian and Pacific Islander | 0.0% | 0.6% |
| Other | 0.0% | 0.4% |
| **Household** | | |
| **Total** | **342** | **371** |
| Family households | 62.0% | 62.0% |
| Nonfamily households | 38.0% | 38.0% |
| Average household size | 1.99 | 2.05 |
| Average family size | 2.42 | 2.60 |
| **Housing Occupancy** | | |
| Total housing units | 1,167 | 1,207 |
| Vacant housing units | 71.0% | 69.3% |
| **Housing Tenure** | | |
| Owner-occupied housing units | 82.6% | 87.9% |
| Renter-occupied housing units | 17.4% | 12.1% |

| Barnegat Light, New Jersey | 1990 | 2000 |
|---|---|---|
| **Population:** | 681 | 764 |
| **Education:** | | |
| High school graduates (25 years or older) | 84.9% | 92.1% |
| **Economic Characteristics** | | |
| Labor force (16 years and over) | 52.6% | 46.9% |
| Unemployed | 0.5% | 1.2% |
| Median Household Income | $ 37,955 | $ 52,361 |
| Individuals below the poverty line | 7.2% | 4.7% |
| **Employment in some industry sectors:** | | |
| Managerial/professional | 32.4% | 40.8% |
| Technical, Administrative, & Sales | 31.4% | 23.3% |
| Construction, Production, Maintenance, & Transportation | 10.4% | 16.4% |
| Farming, fishing, forestry, & mining | 13.9% | 6.5% |
| **Industry** | | |
| Forestry, fishing, hunting, mining, and agriculture | 12.6% | 8.2% |
| Construction | 12.6% | 10.3% |
| Manufacturing | 7.4% | 4.8% |
| Wholesale trade | 1.3% | 1.7% |
| Retail trade | 21.0% | 9.2% |
| Education, health & social services | 7.4% | 16.8% |
| Arts, recreation, lodging & food services | 2.9% | 11.0% |

Barnegat Light is a vacation and retirement destination. Of the 1,207 housing units available in 2000, 64.3 percent (781 units) were vacation homes, and 371 homes were occupied year-round (NMFS, 2003). Some 69.3 percent of the homes were unoccupied at the time of the 2000 census. About one-quarter of the resident population had lived in Barnegat Light for less than five years in 2000, and most of the new residents moved to the town from other parts of New Jersey. Of the population of Barnegat Light in 2000, 55 percent (430 persons) had been

[1] Income and earnings data reported in the decennial Censuses is for the previous year, *i.e.* the income reported in the 1990 Census is for 1989, for the 2000 Census it is for 1999.

born in New Jersey, while 41 percent were born elsewhere in the United States. There is a "community stickiness" factor among persons resident in Barnegat Light, since 70 percent had lived there prior to 1995, but there is also evidence of change that could affect life-style and the culture of the community. One of the elements of "community stickiness" is that many of the "new" residents are retirees who have converted their former vacation homes to year-round residences.

In 1881, the Barnegat City Improvement Company was formed and developed the present-day town as a resort and recreation area, with the town owning all the beaches and dunes (NMFS, 2003). The mix of tourism and fishing has continued to the present. Fishing operations are now linked to their markets by road and there is a tight mesh between the winter and summer economies. Local shops and services are sustained by the fishing activities in the winter months, and it is estimated that the direct employment in fisheries and fishing services was on the order of 52 percent of the 300 persons civilian workforce in 2000. This number does not agree with the Census Bureau's data of fisheries employment of 6.5 percent, probably due to failure of respondents to complete census forms or undercounting because fishermen were at sea.

There are four full service marinas in Barnegat Light in addition to 44 municipal boat slips and a municipal ramp (NMFS, 2003). The marinas and slips are on the bayside of Long Beach Island and extend southwards some 18 blocks from the inlet. Commercial fishing docks and fishhouses also line Bayview Avenue, but are clustered towards the southern end of the street. Five bait and tackle shops, three of which also provide boat rentals, provide services to local and visiting fishermen. The charter fleet working from Barnegat Light is estimated to be 20 boats, including eight vessels with HMS permits. About half this fleet is active year-round in Barnegat Light, while the other vessels at least fish elsewhere in the winter months. Some of the boat fish for tuna off North Carolina in the winter and spring, while others fish from November through April from ports in Florida.

One dock is completely occupied by privately-owned, commercial vessels, including seven scallopers, ten longliners that fish for tunas, swordfish, and tilefish, and about nine inshore net vessels. Three offloading stations are part of this dock. Five or six locally hired full-time employees, the vessel captain, and the crew perform the offloading. Additional dock hands are hired locally for the busy season. The owners of the dock sell some of the catch to fresh fish markets in Boston, Philadelphia, Maryland, and New York with the remaining being sold to local restaurants, retailers, wholesalers or at their own fish market, which is open from April to October (McCay, 1993).

Some of the fisheries organizations in Barnegat Light include Blue Water Fishermen's Association; Forked River Tuna Club; Jersey Devils Fishing Club; Beach Haven Marlin and Tuna Club; Long Beach Island Fishing Club; and United National Fishermen's Association.

The Barnegat Light port is known for its pelagic longline fishery. Today, the fleet targets yellowfin and bigeye tunas for most of the year and swordfish for part of the year. Pelagic and large coastal sharks are important incidental catches and some species like mako, porbeagle, and sandbar sharks are usually kept and sold. There are a large number of residents that hold a commercial permit for sharks (22 permits; Table 9.38) and swordfish (18 permits; Table 9.39).

During the winter, a few vessels continue to bottom longline for tilefish in the deep waters of the outer continental shelf and canyons. Some captains from this port have begun to fish off the coasts of other countries. Pelagic longline crews are increasingly from other regions, such as Nova Scotia and some of the southern states. Some of the pelagic longline fishermen from Barnegat Light have become distant-water operators, going to the Grand Banks off Newfoundland, the waters off Greenland, as well as the Caribbean, Brazil, and other distant fishing grounds. The owner of one major fleet (six longline vessels) has left Barnegat Light to fish for HMS in the Pacific Ocean (Wilson *et al*., 1998).

Other captains of pelagic longline vessels strongly prefer to work closer to home or to take shorter trips. The options of those who resist going to other ports are far more restricted. Distant water fishing is very disruptive to families and the community. Some local vessels are now converting from pelagic longline fishing to monkfishing, although many who have tried to convert to other fisheries have failed to meet deadlines for limited entry. Another concern of local residents is that the demise of commercial fisheries is likely to transform the use of the waterfront, bringing in condominium development where marinas are now located, an outcome that many long-term residents find undesirable.

#### *9.4.7.2 Brielle, New Jersey*

Brielle is located in the southernmost region of Monmouth County, and borders the Manasquan River of central New Jersey. For the purposes of this document, the community will include Brielle/Point Pleasant. This is an area where recreational fishermen are as traditional as commercial fishermen, and recreational fishermen have been distressed about the management of tunas and sharks.

Brielle experienced a modest population increase between 1990 and 2000 from 4,406 to 4,893 individuals (Table 9.12). The percent of males and females remained virtually unchanged between 1990 and 2000 with 48 percent of the population comprised of males and 52 percent females. The age distribution of the Brielle population remained virtually the same for the past decade. The age distribution is fairly even between the under 20 years old, 20 – 44, and 45 – 64 years old. The over 65 year olds are the smallest age group with about 19 or 18 percent. Whites accounted for approximately 93 percent of the population in both 1990 and 2000. The percent of other races, however, declined between 1990 and 2000. The largest industry in 1990 was retail trade, which dropped significantly by 2000 (7.3 percent). In 2000, the largest industries in Brielle were education, health, and social services. In both 1990 and 2000, the greatest source of employment was managerial and professional related jobs. Employment in the farming, fishing, forestry, and mining declined from 6.8 percent in 1990 to 0.7 percent in 2000.

The Brielle/Point Pleasant port is one of the most important of the inlet ports along the barrier beach complex that makes up the New Jersey coast. It has been a center of both recreational and commercial fishing since the early 1800s. It is estimated that up to 100 working charterboats used this port historically. Today, Brielle has ten charter/headboats, and there are 17 charter/headboats in Point Pleasant. The majority of vessels that fish offshore are private vessels. It is reported that although these vessels actively fish for tunas and are thus required to have an Atlantic tunas permit, many of these vessels do not hold the necessary permit.

New Jersey, and in particular Brielle, recreational fishermen (private and charter/headboats) have historically targeted school bluefin tuna (measuring 27 inches to less than 47 inches). There is documentation back to the 1890s regarding the recreational fishery for bluefin tuna. According to respondents in the Wilson *et al.*, study, New Jersey vessels landed nearly 20,000 bluefin tuna in one month of 1939. The 1998 annual coastwide Angling category quota was 269 mt, or about 19,000 fish.

**Table 9.12 Demographic Profile of Brielle, New Jersey**. Source: U.S. Census, 1990 and 2000.

| Demographics | 1990 | 2000 |
|---|---|---|
| Total Population | 4,406 | 4,893 |
| **Sex** | | |
| Male | 48.2% | 47.4% |
| Female | 51.8% | 52.6% |
| **Age** | | |
| Median Age | **42.7** | **42.9** |
| < 20 | 23.2% | 25.2% |
| 20 - 44 | 28.6% | 27.9% |
| 45 - 64 | 29.1% | 29.1% |
| > 65 | 19.2% | 17.8% |
| **Race** | | |
| White | 93.8% | 93.1% |
| Black or African American | 5.4% | 3.5% |
| American Indian and Alaska Native | 0.8% | 0.1% |
| Asian and Pacific Islander | 0.0% | 0.7% |
| Other | 0.0% | 2.7% |
| **Household** | | |
| **Total** | **1,735** | **1,938** |
| Family households | 74.6% | 73.0% |
| Nonfamily households | 25.4% | 27.0% |
| Average household size | 2.54 | 2.52 |
| Average family size | 3.00 | 3.00 |
| **Housing Occupancy** | | |
| Total housing units | 1,986 | 2,123 |
| Vacant housing units | 12.6% | 8.7% |
| **Housing Tenure** | | |
| Owner-occupied housing units | 82.3% | 83.4% |
| Renter-occupied housing units | 17.7% | 16.6% |

| Brielle, New Jersey | 1990 | 2000 |
|---|---|---|
| **Population:** | 4,406 | 4,893 |
| **Education:** | | |
| High school graduates (25 years or older) | 91.3% | 94.8% |
| **Economic Characteristics** | | |
| Labor force (16 years and over) | 58.6% | 59.4% |
| Unemployed | 4.4% | 2.1% |
| Median Household Income | $ 53,485 | $ 68,368 |
| Individuals below the poverty line | 2.3% | 3.9% |
| **Employment in some industry sectors:** | | |
| Managerial/professional | 44.7% | 56.0% |
| Technical, Administrative, & Sales | 31.5% | 21.8% |
| Construction, Production, Maintenance, & Transportation | 0.9% | 11.3% |
| Farming, fishing, forestry, & mining | 6.8% | 0.7% |
| **Industry** | | |
| Forestry, fishing, hunting, mining, and agriculture | 1.6% | 0.7% |
| Construction | 5.9% | 7.4% |
| Manufacturing | 11.7% | 8.4% |
| Wholesale trade | 6.7% | 2.5% |
| Retail trade | 21.4% | 7.3% |
| Education, health & social services | 18.7% | 23.1% |
| Arts, recreation, lodging & food services | 2.1% | 7.8% |

Here, as elsewhere in New York and New Jersey, HMS fisheries often take place in the "canyons" and around eddies and at the edge of the continental shelf. In the past, bluefin tuna could be caught on day trips in coastal waters, rather than the canyons, and they were the major source of profit for the charter/headboat fleet here (and elsewhere in New Jersey and the larger Mid-Atlantic). Today, the canyon fisheries for tunas are thought of as additional opportunities for most charter/headboat captains, who regularly take clients fishing for bluefish, fluke, or other tunas.

At one time, the full-time canyon fishermen included hundreds of inshore bluefin tuna vessels, and "six-pack" boats (smaller vessels certified to carry no more than six passengers; also known as uninspected vessels). Respondents to the 1998 Wilson *et al*. study indicated that they must steam 80 miles offshore to reach the canyons, and are therefore limited by weather. A similar trend is found in Cape May, New Jersey, where anglers fish in the Baltimore Canyon. The Hudson Canyon offshore fishery started 15 to 20 years ago, and the Brielle/Point Pleasant fleet rely heavily on the canyon for the fall fishery. This fishery has diminished, and the smaller, less powerful vessels are gone. Recent improvements in the U.S. economy have once again

fueled investment in expensive offshore fishing vessels, and this is a major contribution to New Jersey's economy. For example, the majority of the private vessels purchased in the Cape May area are built in New Jersey. There are eight tackle shops in the Brielle/Point Pleasant area.

Charter/headboat captains indicate that in 1998, they were generally unable to book tuna trips, because passengers do not like to take trips when the bluefin tuna retention limit is low or when retention is prohibited. One of the charterboat owners said that in 1991, the four busiest captains averaged 30 to 35 tuna trips each, but that the average number of trips dropped to approximately 12 in 1996 (Wilson *et al*., 1998). The argument for more liberal retention limits includes the idea that it is necessary to keep people interested in the gambling aspect of the fishery. Although people may not actually land more fish, customers are attracted by the possibility. Charterboat captains emphasize that reasonable recreational retention limits are important to their clients, who wish to bring fish home to eat and share with others.

Due to landings restrictions on bluefin tuna, bluefish generally replaced the tunas as the important inshore/offshore fishery in northern New Jersey. The Brielle/Point Pleasant charter/headboat fishermen, like most other people involved in the sport fisheries, would like to see the economic value of their fisheries documented. In this light, a recent study done in Virginia found that 30 percent of the fisheries income in the state came from the offshore recreational fisheries. Respondents emphasized that the figure is likely to be much larger for New Jersey (Wilson *et al*., 1998).

Adding to the general problems of the bluefin tuna fishery in New Jersey is the effect of the "North-South line." This line (38° 47' N), roughly at Delaware Bay, is used to separate the Angling category fishery into a northern and a southern area. Recreational bluefin tuna fishermen from Brielle fish in the northern area whereas fishermen from Cape May and other southern ports have historically fished in the southern area. However, because it is unlawful to possess bluefin tuna in excess of the daily retention limit in the respective area, those who fish in the southern zone and return to a New Jersey port with their catch must abide by northern area regulations. The Draft Consolidated HMS FMP contained a preferred alternative to remove the Angling category's North/South line (see Section 2.3.1). Removal of the North-South line would mean consistent regulations in the EEZ off of New Jersey; making it easier for New Jersey anglers to comply with the daily retention limits and allowing them to land in any New Jersey port. Due to public comment on the alternative, the Consolidated HMS FMP would maintain the North/South line as a management tool and would provide an equitable opportunity to harvest the recreational BFT allocation.

Sharks are comparatively less important to recreational fishermen in Brielle than bluefin tuna. Sharks play an important role in the fishing industry, and, while other fish may be available, some customers are attracted by sharks in particular. Makos are the sharks with the greatest economic importance to the recreational fishery in New Jersey. Mako tournaments are popular and several impose catch restrictions on participants. They have recently canceled some traditional shark tournaments out of concern for the stock, and two recent shark tournaments in New Jersey did not catch a single mako above the tournament's minimum size. Researchers reported that the shark fishery in Brielle is being strongly affected by a decrease in its historical tuna fishery and is therefore more vulnerable to negative impacts.

### 9.4.8 Delaware

Between 1990 and 2000, Delaware's population increased by 15 percent (Table 9.13). The percentage of individuals 25 years and older with a high school diploma and/or a graduate level degree has increased by about five percent. The percentage of employed individuals has declined slightly, while both the unemployment rate and individuals below the poverty line increased over the past decade. As with many of the other states, employment in the farming, fishing, forestry, and mining industries has declined, whereas the education, health, and social services industries provided the greatest employment opportunities in 2000.

**Table 9.13 Delaware Demographic Profile.** Source: U.S. Census, 1990 and 2000

| Delaware | 1990 | 2000 |
|---|---|---|
| **Population:** | **666,168** | **783,600** |
| **Education:** | | |
| High school graduates (25 years or older) | 77.50% | 82.60% |
| **Employment:** | | |
| Labor force (16 years and over) | 68.3% | 65.7% |
| Unemployment Rate | 4.0% | 5.2% |
| Median Household Income | $34,875 | $47,381 |
| Individuals below the poverty line* | 8.7% | 9.2% |
| **Employment in some industry sectors:** | | |
| Farming, fishing, forestry & mining | 2.3% | 1.1% |
| Construction | 8.0% | 7.4% |
| Manufacturing | 18.8% | 13.2% |
| Wholesale trade | 3.5% | 2.6% |
| Retail | 2.1% | 11.6% |
| Education, health & social services | 23.0% | 19.4% |
| Arts, recreation, lodging & food services | 10.4% | 7.7% |

*U.S. Census uses data from 1989 and 1999 to estimate these values.

Thirty-nine commercial tuna permit holders lived in Delaware during 2005 (Table 9.36). There are three HMS dealers for tuna located in Delaware, one in Rehoboth, another in Harrington, and the last in Middletown (Table 9.37 and Figure 9.5). There was one shark and one swordfish permit holder in the state of Delaware during 2005 (Table 9.38 and Table 9.39).

The recreational fishery in Delaware Bay and offshore is popular because of the diversity of species and habitats available to anglers. In 2004, Delaware's recreational fisheries attracted 354,000 saltwater anglers of whom 68 percent were from out-of-state. In total, the anglers made 1,163,000 fishing trips in 2004 (NMFS, 2005a). In 2005, Delaware was home to 741 HMS angling permit holders (Table 9.34) with a significant concentration of anglers in Millsboro, Delaware. The retail sales generated by the Delaware anglers were estimated to be $48.9 million in 2001 and the marine recreational fishing service sector provided some 724 jobs in Delaware (ASA, 2002). One hundred and three charter/headboats with HMS permits were operating from Delaware communities in 2005. Communities where these HMS-permitted charter/headboats are registered include Bethany Beach, Cedar Creek, Dagsboro, Dewey Beach, Dover, Fenwick Island, Georgetown, Indian River, Lewes, Long Neck, Middletown, Milford, Millsboro, Ocean

View, Rehoboth Beach, and Wilmington (NMFS, 2003). To date, no HMS community profiles have been developed for any Delaware communities due to the relatively low level of involvement with HMS fisheries.

### 9.4.9 Maryland

Maryland's population increased from 4.8 million people in 1990 to 5.3 million people in 2000 (Table 9.14). The percentage of individuals 25 years and older with a high school diploma and/or some graduate level degree has increased by about five percent. The percentage of employed individuals, ages 16 and older, has declined slightly, while both unemployment rate and individuals below the poverty line remain approximately the same over the past decade. As with many of the other states, employment in the farming, fishing, forestry, and mining industries has declined, whereas the education, health, and social services industries provided the greatest employment opportunities in 2000.

In Maryland, there are 57 commercial tuna permit holders (Table 9.36). In addition, ten shark permit holders and seven swordfish permit holders reside in Maryland (Table 9.38 and Table 9.39). To support these HMS fisheries, there are sixteen dealers permitted for tuna, sharks and swordfish (Table 9.37).

**Table 9.14 Maryland Demographic Profile.** Source: U.S. Census, 1990 and 2000

| Maryland | 1990 | 2000 |
|---|---|---|
| **Population:** | **4,781,468** | **5,296,486** |
| **Education:** | | |
| High school graduates (25 years or older) | 78.4% | 83.8% |
| **Employment:** | | |
| Labor force (16 years and over) | 70.6% | 67.8% |
| Umemployment Rate | 4.3% | 4.7% |
| Median Household Income | $39,386 | $52,868 |
| Individuals below the poverty line* | 8.3% | 8.5% |
| **Employment in some industry sectors:** | | |
| Farming, fishing, forestry & mining | 1.7% | 0.6% |
| Construction | 7.9% | 6.9% |
| Wholesale trade | 3.8% | 2.8% |
| Retail | 15.0% | 10.5% |
| Manufacturing | 10.3% | 7.7% |
| Education, health & social services | 25.8% | 20.6% |
| Arts, recreation, lodging & food services | 1.2% | 6.8% |

*U.S. Census uses data from 1989 and 1999 to estimate these values.

In 2004, some 485,000 Maryland residents were marine recreational fishermen (NMFS, 2005a). Another 336,000 out-of-state marine anglers also fished in Maryland. Between them these two groups made some 2.7 million fishing trips for saltwater species (NMFS, 2005a). In 2005, Maryland was home to 1,563 HMS angling permit holders (Table 9.34). The ASA estimated that saltwater anglers generated $335.9 million in retail sales, and the marine recreational fishing industry provided some 6,981 jobs in Maryland in 2001 (ASA, 2002).

The recreational fishery for sharks is largely offshore, although sharks are found in the lower reaches of the Chesapeake Bay. The offshore fishery takes place at least 15 miles out to sea and charterboats often run 60 to 70 miles offshore to areas of deep water. In Maryland, the number of HMS charter/headboat permit holders increased from 155 in 2003 to 196 in 2005 (Table 9.35). Most of these vessels are registered in Ocean City, which is known as the "White Marlin Capital of the World". This hotspot for recreational fishing industry is home to the Annual White Marlin Open, which brings approximately $1 million as the top prize for the tournament. Other communities involved with the HMS charter/headboat industry include Annapolis, Baltimore, Cambridge, Chesapeake City, Chester, Conowingo, Edgewater, Glen Burnie, Ocean Pines, Pasadena, Pocomoke, Salisbury, Severna, St. Michaels, Stevensville, Tilghman, White Hall, and White Haven.

### 9.4.10 Virginia

Virginia's population increased from 6.2 million people in 1990 to 7.1 million people in 2000 (Table 9.15). The percentage of individuals 25 years and older with a high school diploma and/or some graduate level degree has increased by six percent. The percentage of employed individuals, ages 16 and older, has declined slightly, while both the unemployment rate and individuals below the poverty line remained approximately the same over the past decade. Employment in the farming, fishing, forestry, and mining industries has declined, whereas the education, health, and social services industries provided the greatest employment opportunities in 2000.

Virginia ranked second for the quantity of commercial fishery landings at its Reedville port and third for the value of the commercial landings in the Hampton Roads area in 2004 (NMFS, 2005a). Virginia has 106 commercial tuna permit holders (Table 9.36). The Virginia commercial HMS fisheries have 27 licensed dealers, with two or more dealers operating in Chincoteague, Hampton, Newport News, Norfolk, and Virginia Beach (Table 9.37 and Figure 9.5). Six shark and five swordfish permit holders live in the Commonwealth of Virginia (Table 9.38 and Table 9.9). The commercial landings of tuna, sharks, and swordfish are not as significant as the total commercial landings coming into the state; therefore, HMS fisheries are not significantly tied to any particular Virginia community and no HMS-specific community profiles have been developed for Virginia.

In 2003, the Virginia recreational saltwater fishery attracted 996,000 anglers, of whom just over 42 percent were from out-of-state (NMFS, 2005a). Collectively, these anglers made 3.6 million recreational fishing trips in 2004. In 2005, Virginia was home to 1,351 HMS angling permit holders (Table 9.34) with a large concentration of angling permit holders living in Virginia Beach and Chesapeake (Figure 9.1). It is estimated that these saltwater anglers generated some $246.8 million in retail sales in Virginia in 2001 and their activity provided 4,251 jobs in the marine recreational fishing industry (ASA, 2002). Principal species sought were striped bass, flounder, bluefish, weakfish (sea trout) and drum. Offshore fishing was principally for mackerels, tuna, dolphin fish, and billfish.

The Virginia recreational fishery for sharks is similar to that of Delaware and Maryland. There is a very small directed shark fishery in the private boat sector, but most sharks are taken incidentally to the catch of other species. There are 153 charter/headboats in Virginia with HMS

permits (Table 9.35). The communities with the greatest number of charterboats with HMS permits were Virginia Beach, Norfolk, Chincoteague, Wachapreague, and Portsmouth. The principal shark fishing season for recreational anglers is June through October.

**Table 9.15 Virginia Demographic Profile.** Source: U.S. Census, 1990 and 2000

| Virginia | 1990 | 2000 |
|---|---|---|
| **Population:** | **6,187,358** | **7,078,515** |
| **Education:** | | |
| High school graduates (25 years or older) | 75.2% | 81.5% |
| **Employment:** | | |
| Labor force (16 years and over) | 68.9% | 66.8% |
| Unemployment Rate | 4.5% | 4.2% |
| Median Household Income | $33,328 | $46,677 |
| Individuals below the poverty line* | 10.2% | 9.6% |
| **Employment in some industry sectors:** | | |
| Farming, fishing, forestry & mining | 2.6% | 1.3% |
| Construction | 7.8% | 7.3% |
| Wholesale trade | 3.4% | 2.7% |
| Retail | 16.1% | 11.4% |
| Manufacturing | 15.1% | 11.3% |
| Education, health & social services | 23.2% | 18.3% |
| Arts, recreation, lodging & food services | 1.1% | 7.2% |

*U.S. Census uses data from 1989 and 1999 to estimate these values.

### 9.4.11 North Carolina

The population in North Carolina increased by nearly 18 percent between 1990 and 2000 (Table 9.16). The percentage of individuals 25 years and older with a high school diploma and/or some graduate level degree has increased by eight percent. The percentage of employed individuals, ages 16 and older, has remained roughly the same, while the unemployment rate increased and the individuals below the poverty line declined slightly over the past decade. As with many of the other states, employment in the farming, fishing, forestry, and mining industries has declined, whereas the manufacturing industry provided the greatest employment opportunities in 2000.

North Carolina's commercial fishery has a distinctive split between the North and South with Cape Hatteras as the dividing point as a result of the local oceanographic conditions. The Gulf Stream, as it skirts the Cape Hatteras shoals, is twenty miles offshore. This is the closest it approaches land after leaving the Cape Canaveral area. The cold Labrador Current influences the waters North of Cape Hatteras. The area off Dare and Hyde Counties, North Carolina is where these two water bodies mix and provides very rich fishing grounds. South and West of Cape Hatteras, the coast curves away to the West forming the relatively shallow Carolina Bight. Vessels operating in this area have further to travel from shore to the Gulf Stream and do not have the same diversity and richness found in the fisheries immediately to the North of Cape Hatteras.

North Carolina has the fifth largest number of HMS angling permit holders with 1,863 permits issued to its residents (Table 9.34). In 2004, NMFS estimated that 2,055,000 anglers fished in North Carolina's marine waters making a total of 7,025,000 million recreational fishing trips (NMFS, 2005a). Of these fishermen, 1,152,000 anglers (56 percent) were from out-of-state and 14 percent were from non-coastal counties in North Carolina. Marine recreational fishing is thus an important element in the life and economies of coastal counties. In 1996, expenditures by saltwater anglers in North Carolina were approximately $673 million, accounting for nearly eight percent of the total U.S. expenditures by saltwater anglers. Saltwater fishing in North Carolina incurred expenditures of nearly $1.3 billion (about five percent of the U.S. total), generated wages and salaries of approximately $357 million and created over 19,000 jobs (ASA, 1997 cited by Wilson, 1998). In 2001, ASA estimated that saltwater recreational fisheries generated about $388 million in retail sales and the marine recreational fishing industry provided 8,551 jobs (ASA, 2002).

**Table 9.16 Demographic Profile of North Carolina.** Source: U.S. Census, 1990 and 2000

| North Carolina | 1990 | 2000 |
|---|---|---|
| **Population:** | **6,628,637** | **8,049,313** |
| **Education:** | | |
| High school graduates (25 years or older) | 70.0% | 78.1% |
| **Employment:** | | |
| Labor force (16 years and over) | 67.6% | 65.7% |
| Unemployment Rate | 4.8% | 5.3% |
| Median Household Income | $26,647 | $39,184 |
| Individuals below the poverty line* | 13.0% | 12.3% |
| **Employment in some industry sectors:** | | |
| Farming, fishing, forestry & mining | 2.9% | 1.6% |
| Construction | 7.0% | 8.2% |
| Wholesale trade | 4.2% | 3.4% |
| Retail | 16.1% | 11.5% |
| Manufacturing | 26.7% | 19.7% |
| Education, health & social services | 20.3% | 19.2% |
| Arts, recreation, lodging & food services | 1.0% | 6.9% |

*U.S. Census uses data from 1989 and 1999 to estimate these values.

The marine recreational fisheries in North Carolina fall into three groups by species, gear and access. First, the recreational fishery in the Sounds and behind the barrier islands is typically a small, open boat fishery for flounder, croaker and drum, spot and sea trout. Striped bass (rockfish) forms an important fishery in Albemarle Sound and around the northern inlets. Second, the inshore and ocean beach fisheries target the same species but also include striped bass, bluefish, and king and spanish mackerel. These inshore fisheries require larger boats and heavier gear, but the boats operate within sight of land. Third, the offshore recreational fisheries target billfish, tunas (bluefin, yellowfin and blackfin), mackerels, dolphin fish (mahi mahi), wahoo, and, in the southwestern area, shark. In the area North of Hatteras and around Cape Lookout, recreational fishermen view sharks as a nuisance in their pursuit of other fish, particularly tuna, marlin, and swordfish. Typically, the boats are 22 feet long or longer, have electronic navigation systems, and are powered by an inboard engine. Generally, heavy tackle is

used, and fighting chairs are usually installed for the billfish and giant tuna fishing. The offshore boats normally fish 15 to 60 miles offshore. North Carolina marine recreational fisheries are seasonal, but fishing is year-round as fish species move through the area.

In 2005, North Carolina had the fourth largest fleet of charter/headboats holding HMS permits with 441 vessels (Table 9.35). A significant percentage of these boats operated from communities North of Cape Hatteras. Some of these charterboats were highly specialized, for seeking only billfish for example. The vessels specializing in tunas usually began the year fishing off Dare or Hyde counties, and then moved North to operate off New Jersey and then later off Cape Cod. Vessels specializing in billfish fisheries, would fish off North Carolina in the summer months and then head to the Caribbean for the winter season. Other charterboats, and some headboats, would fish in North Carolina waters from April through November, and then travel south to Florida to fish from December through March. From the advertising materials distributed by charter operations it would appear that from 12 to 15 percent of the fleet changed their operating base during the fishing year.

An unusual feature of the North Carolina charter/headboat fleet is the number of boats built locally. This appears to be particularly true for vessels over 35 feet in length and fishing offshore. Similarly, information about captains and crew of the charter fleet emphasized their local connections, and often relatives of different generations fished together. While this information has not been gathered systematically, it appears that community linkages between North Carolina captains and crews are stronger than those in many of the other states.

North Carolina has historically been an important commercial shark fishing state with 35 to 60 percent of all South Atlantic region landings coming from North Carolina in recent years. The time/area closure implemented in January 2005, to protect essential fish habitat for sandbar and dusky sharks has forced commercial shark fishermen to seek out other fisheries or other gears to target sharks and other species. Many fishermen claim that the closure has hurt their business. After North Carolina's petition to NMFS reopen Federal waters or adjust the Mid-Atlantic shark closure was denied, the State of North Carolina decided to reopen state waters to the commercial shark fishery in 2006.

In addition to recreational and for-hire industries, North Carolina residents hold the second largest number of commercial tuna permits with 659 permitted vessels (Table 9.36). Thirty-eight North Carolina residents hold shark permits and 20 residents hold swordfish permits (Table 9.38 and Table 9.39). In addition to these commercial permit holders, there are 58 dealers authorized to purchase and sell tunas, sharks, and swordfish. North Carolina is fourth in HMS dealers behind Florida, Massachusetts, and New York (Table 9.37).

#### *9.4.11.1 Hatteras*

Hatteras Township is located in the "Outer Banks" of North Carolina, and includes the villages of Avon, Buxton, Frisco and Hatteras. Hatteras Village is a rural community at the southern end of Hatteras Island on North Carolina's Outer Banks. Hatteras Island is a dynamic barrier island, bordered by the Atlantic on the East and Pamlico Sound on the West. In the 18th century, Hatteras established itself as a seaport community, where activities included whaling

and exporting/importing. Since World War II, the economy of the Hatteras community has depended on charter and commercial fishing (Wilson *et al*., 1998).

According to the 1990 and 2000 Census data, the population decreased from 2,675 in 1990 to 2,596 in 2000 (Table 9.17). The population decline can be attributed to mortality and out-migration exceeding births and in-migration. The number of males and females were approximately equal in 1990 and 2000. The age structure of the population has changed; the population has aged markedly, with consequences for educational attainment and other demographic indicators. In 1990, 37 percent of the population was 45 years or older, while in 2000 some 57 percent of the year-round residents were aged 45 years or older. The racial composition of the township has not changed significantly between the 1990 and 2000 censuses with the majority of the township Caucasian and European ancestry predominant. The number of households has increased from 1,078 in 1990 to 1,171 in 2000, while the average size of households has dropped from 2.46 persons to 2.20 persons/household. These trends are consistent with an aging and declining population as "empty-nesters" and retirement couples and widows/widowers make up a higher proportion of households. The farming, fishing, forestry, and mining industries employed about 34 percent of the Hatteras population, a significant increase from 1990, and the greatest sources of employment (Table 9.17). One of the most prominent fishing organizations is the Hatteras-Ocracoke Auxiliary of the North Carolina Fishermen's Association (Wilson *et al*, 1998).

**Table 9.17 Demographic Profile of Hatteras, North Carolina** Source: U.S. Census, 1990 and 2000

| Demographics | 1990 | 2000 |
|---|---|---|
| Total Population | 2,675 | 2,596 |
| **Sex** | | |
| Male | 51.6% | 49.2% |
| Female | 48.4% | 50.8% |
| **Age** | | |
| Median Age | **35.1** | **42.1** |
| < 17 | 23.9% | 20.4% |
| 18 - 44 | 39.6% | 33.7% |
| 45 - 64 | 25.4% | 39.6% |
| > 65 | 11.1% | 17.2% |
| **Race** | | |
| White | 98.8% | 97.1% |
| Black or African American | 0.4% | 0.0% |
| American Indian and Alaska Native | 0.8% | 0.0% |
| Asian and Pacific Islander | 0.0% | 0.0% |
| Other | 0.0% | 2.3% |
| **Household** | | |
| **Total** | **1,078** | **1,171** |
| Family households | 69.7% | 78.1% |
| Nonfamily households | 30.3% | 21.4% |
| Average household size | 2.46 | 2.20 |
| Average family size | 2.97 | 2.73 |
| **Housing Occupancy** | | |
| Total housing units | 1,919 | 2,156 |
| Vacant housing units | 43.4% | 45.7% |
| **Housing Tenure** | | |
| Owner-occupied housing units | 72.3% | 79.1% |
| Renter-occupied housing units | 27.7% | 20.9% |

| Hatteras Township, North Carolina | 1990 | 2000 |
|---|---|---|
| **Population:** | 2,675 | 2,596 |
| **Education:** | | |
| High school graduates (25 years or older) | 74.4% | 68.1% |
| **Employment:** | | |
| Labor force (16 years and over) | 67.3% | 83.1% |
| Unemployed | 2.80% | 4.6% |
| Median Household Income | $ 24,667 | $ 39,881 |
| Individuals below the poverty line | 6.4% | 4.7% |
| **Employment in some industry sectors:** | | |
| Managerial/professional | 28.4% | 23.2% |
| Technical, Administrative, & Sales | 29.9% | 23.3% |
| Construction, Production, Maintenance, & Transportation | 16.6% | 10.8% |
| Farming, fishing, forestry, & mining | 6.7% | 33.8% |
| **Industry** | | |
| Forestry, fishing, hunting, mining, and agriculture | 6.4% | 10.4% |
| Construction | 16.2% | 15.5% |
| Manufacturing | 3.4% | 2.4% |
| Wholesale trade | 2.7% | 4.0% |
| Retail trade | 26.1% | 14.9% |
| Education, health & social services | 11.3% | 14.0% |
| Arts, recreation, lodging & food services | 1.2% | 13.4% |

Fishing from Hatteras is a year-round activity, subject to weather conditions. The cycle of the offshore fishery begins in December, when giant bluefin tuna are passing through the area through March. This catch-and-release fishery is followed by the availability of yellowfin tuna, dolphin, and wahoo from March through December. In the summer months, a catch-and-release

fishery for blue and white marlin, swordfish and sailfish takes place between May and September. If ocean conditions are poor, fishermen are able to fish in the sheltered waters behind the barrier islands and in Pamlico Sound for striped bass, drum, sea trout and redfish.

Commercial fishing is a major occupation on Hatteras Island, where there are approximately 500 to 600 part-time and full-time commercial and charterboat fishermen (Wilson *et al*., 1998). The 2000 Census indicates that 34 percent of the population is employed in the farming, fishing, forestry, and mining industry (Table 9.17). Since fishermen are customarily self-employed either as owner-operators of vessels or as crew/independent contractors receiving a share of the catch or tips as payment for their services, Wilson's estimate of 500-600 part-time and full-time commercial and charterboat fishermen is considered to be accurate for 2003 (NMFS, 2003).

Tourism and recreational fishing are also major industries in Hatteras in terms of seasonal employment. There are three economic "seasons" in Hatteras (NMFS, 1999a). In the spring, weekend and holiday travelers cause an increase in revenue; several vessels from the commercial fleet become active in charter fishing beginning in April. During the second season, June through August, family vacations provide tourist income. The third season is the fall, when fishing, surfing and windsurfing are the dominant activities.

There are five seafood wholesalers, one retail market, and three marinas (Wilson *et al*., 1998). The three marinas in Hatteras provide dockage for as many as 56 offshore charter/headboats, some 15 inshore boats that can fish along the coast, and six charterboats that fish only in the Sounds. In addition, there are approximately 210 berths for private boats. Some commercial boats use the marinas during the late fall and winter months, but otherwise dock at fish houses and the fishermen's private docks.

The three marinas each have a charterboat fleet of independent owner/operators, and each maintains a booking and information system for its fleet. The charterboats operate with a captain and mate or crewman, and often have a second relief captain available for peak seasons when the boat will be making trips every day. The captain takes his profits (pay) from the revenues earned by the boat, and the mate customarily receives a tip of 15 - 20 percent of the charter fee from the client. In many cases, the boat will retain the sale rights to fish caught by clients and if the right is exercised, the ex-vessel price is apportioned between boat, captain, and mate (crew). At the height of the summer season, the recreational fisheries and fishing services (marinas, bait and tackle, *etc*) in Hatteras provide employment for approximately 205 persons.

The recreational rod and reel fishery for pelagic fish flourishes in Hatteras. A bluefin tuna fishery during winter months is intense but somewhat unpredictable. Early in the spring, fishermen target offshore yellowfin tuna, dolphin, and wahoo, followed by marlin and sailfish fishing in the summer. Other species caught seasonally include king mackerel and striped bass. Fly-fishing has become more popular, although it still comprises a small number of offshore trips from Hatteras. Captains say it is very hard to find a year-round mate because college students work summers only and most skilled fishermen want their own vessels (Wilson *et al*., 1998).

About half of fishing parties are all male and the other half are families, some of which participate in other tourist activities while the others fish. "Make-up charters", where marinas organize the parties, are becoming increasingly common (Wilson *et al*., 1998). One captain estimated that his marina did 140 make-up charters in the past year. The majority of the charter customers want to fish offshore. Customers are often willing to accept retention limits imposed by the captain, although the possibility of landing at least one fish is important to many anglers. Changes in fishing conditions including weather conditions and the availability of fish affect charter bookings almost instantly, and there is not much customer loyalty to Hatteras. Clients cancel trips when they hear a species has moved out of the area. Because Hatteras attracts top sport fishermen from around the world, the issues of minimum sizes and trophy fish take on special significance. Many fishermen are interested in setting records by catching smaller bluefin tuna on fly rods.

In 2005, there were 25 HMS charter/headboat permit holders from Hatteras, North Carolina, but many of the charterboats operating in Hatteras are from other areas. They come for the winter bluefin tuna fishery but stay year-round. Researchers report tension between the local charterboats and the transient charterboats because of increased competition for both fish and customers. There is also tension with private recreational fishermen who follow the charter/headboats to see where they fish (Wilson *et al*., 1998).

The status of the relatively new winter bluefin tuna fishery is hot topic for HMS fishermen in Hatteras is the status of the relatively new winter fishery for bluefin tuna. In their study of the 1997 bluefin tuna fishing season, Ditton *et al*. (1998) found that bluefin tuna anglers spent $3.6 million dollars in Hatteras in two and one-half months in the 1997 winter season. They estimate that this meant a $7.6 million impact on the output of the Hatteras area economy and supported 170 jobs. Dare County unemployment estimates indicate that the bluefin tuna fishery may have reduced unemployment by eight percent during the first quarter of 1997. Unemployment in Dare County in March 1998, a year when the bluefin tuna did not show up in numbers anywhere near the 1997 level, was 29 percent higher than in March 1997.

Respondents view and respond to the winter fishery very differently, even disagreeing on the year it started. Because of the unpredictability of the appearance of bluefin tuna and the duration of their stay, there is uncertainty among local businesses about whether or not to invest further and stay open during winter months. Those who now have winter jobs, and those who hire them, have a different perspective. Businesses are generally pleased to retain year-round employees rather than hiring and training seasonally. Finding a place to live on Hatteras Island is already difficult for low wage workers. Many people, especially fishermen, did not think the winter fishery would last (Ditton *et al*., 1998).

#### *9.4.11.2 Wanchese, North Carolina*

Wanchese is located on the southern part of Roanoke Island, in the northern Outer Banks. The village continues to revolve around fishing and fish processing. Wanchese's first seafood dealership was opened in 1936 by a family that still operates two seafood businesses in the community. The Wanchese Seafood Industrial Park was constructed in 1980 by the state. It has 30 acres of leasable land, a 15-acre deep-water harbor, and 1,500 feet of commercial-style concrete docks, and seven seafood-related businesses (CNCSS, 1993). The industrial park is

also the scene of the annual blessing of the fleet, which is organized by the Oregon Inlet Users Association. Although commercial fishing has historically been a major industry, there has been an increasing emphasis on recreational angling and tourism.

Between 1990 and 2000, the population increased from 1,374 to 1,527 individuals (Table 9.18). The population is roughly divided between males and females. The population of Wanchese is about 98 percent Caucasian, and mostly of European ancestry. The largest age group is the 18 - 44 year old individuals and continues to remain about the same over the past two decades. The most dramatic shafts in the population distribution have been the decline in the percent of individuals under 20 and increase in the 45 - 64 year old group. In 1990, there were 503 households in Wanchese, with an average of 2.73 persons per household. The number of households had grown to 614 in 2000, with an average of 2.49 persons per household.

**Table 9.18 Demographic Profile of Wanchese, North Carolina.** Source: U.S. Census 1990 and 2000

| Demographics | 1990 | 2000 |
|---|---|---|
| Total Population | 1,374 | 1,527 |
| **Sex** | | |
| Male | 51.2% | 50.7% |
| Female | 48.8% | 49.3% |
| **Age** | | |
| Median Age | **27.7** | **37.2** |
| < 20 | 36.8% | 25.9% |
| 20 - 44 | 35.7% | 37.9% |
| 45 - 64 | 20.2% | 24.1% |
| > 65 | 7.2% | 12.0% |
| **Race** | | |
| White | 98.5% | 98.1% |
| Black or African American | 0.0% | 30.0% |
| American Indian and Alaska Native | 1.5% | 0.6% |
| Asian and Pacific Islander | 0.0% | 0.1% |
| Other | 0.0% | 0.5% |
| **Household** | | |
| **Total** | **503** | **614** |
| Family households | 76.1% | 70.5% |
| Nonfamily households | 23.9% | 29.5% |
| Average household size | 2.73 | 2.49 |
| Average family size | 3.25 | 2.96 |
| **Housing Occupancy** | | |
| Total housing units | 574 | 690 |
| Vacant housing units | 10.8% | 11.0% |
| **Housing Tenure** | | |
| Owner-occupied housing units | 72.1% | 89.0% |
| Renter-occupied housing units | 27.9% | 11.0% |

| Wanchese, North Carolina | 1990 | 2000 |
|---|---|---|
| **Population:** | 1,374 | 1,527 |
| **Education:** | | |
| High school graduates (25 years or older) | 67.3% | 76.5% |
| **Employment:** | | |
| Labor force (16 years and over) | 70.7% | 66.6% |
| Unemployed | 7.8% | 1.8% |
| Median Household Income | $ 25,977 | $ 39,250 |
| Individuals below the poverty line | 9.3% | 8.1% |
| **Employment in some industry sectors:** | | |
| Managerial/professional | 17.0% | 24.3% |
| Technical, Administrative, & Sales | 24.6% | 21.9% |
| Construction, Production, Maintenance, & Transportation | 18.8% | 36.0% |
| Farming, fishing, forestry, & mining | 12.6% | 9.5% |
| **Industry** | | |
| Forestry, fishing, hunting, mining, and agriculture | 19.7% | 8.2% |
| Construction | 5.0% | 9.9% |
| Manufacturing | 9.5% | 13.1% |
| Wholesale trade | 6.6% | 6.9% |
| Retail trade | 19.1% | 11.7% |
| Education, health & social services | 8.5% | 22.0% |
| Arts, recreation, lodging & food services | 2.9% | 7.2% |

In 1990, the largest industries in Wanchese were forestry, fishing, hunting, mining, and agriculture with retail trade as a close second (Table 9.18). The 2000 Census data show a significant decline in the forestry, fishing, hunting, mining, and agriculture industry and a marked increase in the education, health and social services industries. The decline in the farming, fishing, forestry, and mining industry is also noticeable in the employment estimates. Some of these declines can be attributed to difficulties in hiring and managing crew for pelagic longline vessels, especially for the larger vessels that need people to stay on for longer trips (Wilson *et al*., 1998). There is a lot of turnover in fishing crews, particularly when vessels shift to other fisheries and revenue drops. Many of the larger vessels have already left, and experienced fishermen are finding work overseas and other captains and vessel owners are searching for alternatives to commercial fishing. Some have switched to carpentry and building

and others have gone into the charter fishing business. Finding alternative permanent work may prove difficult for many fishermen who are highly skilled in their profession but have less formal education than the average worker (Wilson *et al*., 1998).

Fishing related associations include the Oregon Inlet Users Association and the North Carolina Fisheries Association. The former is involved with supporting the plans for jetties at Oregon Inlet and are responsible for organizing both the Wanchese Seafood Festival and the Blessing of the Fleet. The latter is a trade organization of seafood dealers and commercial fishermen from the state; two members of the 18-member Board of Directors are from Wanchese (CNCSS, 1993).

Recent growth in tourism and recreational fishing has sparked competition for a restricted resource. However, commercial and recreational fishermen still see themselves as being part of the same fishing-based community and many come from the same families. Members of the non-fishing public are generally supportive of the fishing industry. Unlike the surrounding communities, and in distinct contrast to Hatteras Township, Wanchese has very little seasonal variation in employment resulting from tourism; what seasonal fluctuations do exist are caused by the availability of the fisheries resources and are countered by the flexibility and opportunistic nature of the Wanchese fishermen (CNCSS, 1993).

Wanchese is not a community linked to tourism in the way that most other Outer Banks and Dare County communities are. Of the housing stock, only eleven percent was rental properties in 2000 (Table 9.18). The marinas and boatyards in Wanchese cater to transient boats and the charterboat fleets, but recreational fishing from Wanchese is more likely to be done by local fishermen in the Albemarle, Currituck, or Pamlico Sounds, rather than by tourists fishing offshore in private or charterboats. The reason for this is the distance to Oregon Inlet, and the presence of the Oregon Inlet Fishing Center with extensive recreational boat docks, facilities for charterboats, and launching ramps with large parking areas close to the inlet.

A large number of commercially important marine fish are landed in Wanchese, including inshore and offshore species. Many fishermen emphasized that they have to be versatile due to quick changes in water temperature and therefore in availability of species in the area (Wilson *et al*., 1998). The species that longline fishermen target off the mid-Atlantic coast include swordfish, sharks, and tunas (primarily, yellowfin and bigeye). Although targeting bluefin tuna with longline gear is prohibited, there is an incidental catch allowance of bluefin tuna as part of other fishing operations. Fishermen aboard large longline vessels fish for swordfish, tunas, and dolphin. Because of the weather, tunas and swordfish are accessible to the medium-sized vessels that gillnet for other species and longline in the summer. Respondents explained that they also gillnet for dogfish, bluefish, and Spanish mackerel (in spring and fall), and trout and croaker (in winter). They also bottom fish for bass and grouper. There are a number of vessels that gillnet in some seasons and then switch over to charterboat fishing in the summer. Other fishing activities in Wanchese include trawling trips for squid in the summer, and fishing for weakfish, croaker, and flounder in the winter. Market considerations are crucial in deciding which species should be targeted by longline vessels (Wilson *et al*., 1998).

Researchers found pressure on this sector of the longline fishery to be substantial. Hiring and managing crew for pelagic longline vessels is increasingly difficult, especially for the larger vessels that need people to stay on for longer trips. There is a lot of turnover in fishing crews, particularly when vessels shift to other fisheries and revenue drops. Many of the larger vessels have already left, and experienced fishermen are finding work overseas and other captains and vessel owners are searching for alternatives to commercial fishing. Some have switched to carpentry and building and others have gone into the charter fishing business. Finding alternative permanent work may prove difficult for many fishermen who are highly skilled in their profession but have less formal education than the average worker (Wilson *et al*., 1998).

### 9.4.12 South Carolina

The population in South Carolina has increased by 13.1 percent between 1990 and 2000 (Table 9.19). The number of individuals with a high school diploma or greater has increased from 68.3 percent in 1990 to 76.3 percent in 2000. The unemployment rate has remained about the same and the number of individuals below the poverty line declined by just over one percent. Employment in the farming, fishing, forestry, and mining industries has declined slightly with the only significant increase in employment taking place in the arts, recreation, lodging, and food services industries, from 1.1 percent in 1990 to 8.3 percent in 2000.

**Table 9.19 South Carolina Demographic Profile.** Source: U.S. Census, 1990 and 2000

| South Carolina | 1990 | 2000 |
|---|---|---|
| **Population:** | **3,486,703** | **4,012,012** |
| **Education:** | | |
| High school graduates (25 years or older) | 68.3% | 76.3% |
| **Employment:** | | |
| Labor force (16 years and over) | 66.0% | 63.4% |
| Unemployment Rate | 5.6% | 5.9% |
| Median Household Income | $26,256 | $37,082 |
| Individuals below the poverty line* | 15.4% | 14.1% |
| **Employment in some industry sectors:** | | |
| Farming, fishing, forestry & mining | 2.3% | 1.1% |
| Construction | 7.9% | 8.3% |
| Wholesale trade | 3.6% | 3.3% |
| Retail | 16.6% | 11.9% |
| Manufacturing | 25.7% | 19.4% |
| Education, health & social services | 19.9% | 18.6% |
| Arts, recreation, lodging & food services | 1.1% | 8.3% |

*U.S. Census uses data from 1989 and 1999 to estimate these values.

South Carolina has 89 commercial tuna permit holders, holding 1.7 percent of the total commercial tuna permits (Table 9.36). Additionally, there are 32 dealers for tunas, shark, and swordfish in the state of South Carolina. With 25 shark permits (directed and incidental), South Carolina holds the fifth greatest number of shark permits. Due to the relatively small number of HMS permit holders and landings in South Carolina, no community profiles have been developed at this time.

In 2005, South Carolina was home to 736 HMS Angling permit holders (Table 9.34). About 662,000 marine anglers fished in South Carolina's waters making 2.2 million recreational fishing trips in 2004 (NMFS, 2005a). Of these recreational fishermen, 335,000 (51 percent) were from out-of-state and 101,000 (15 percent) were from non-coastal counties within South Carolina. Estimated retail sales generated by the saltwater fishery in South Carolina in 2001 were some $264 million and the marine recreational fishing industry created 5,498 jobs (ASA, 2002). Anecdotal information suggests that the shark fishery is incidental to other fisheries, and is primarily catch-and-release.

In 2005, South Carolina had a fleet of 130 charter/headboats with HMS permits, many of which fish the Gulf Stream for tuna and billfish, dolphin and wahoo, and take shark as incidental catch (Table 9.35). There is a directed fishery by charter/headboats for sharks in South Carolina. Shark fishing trips, including night fishing, are offered by a number of charter operators. Sharks are taken, in the directed fishery, from near-shore waters, inlets, and from around breakwaters and jetties. Shark fishing is said to be particularly good from May to December, but sharks are available year-round. Principal species targeted are blacktip, hammerhead, lemon, and tiger shark. The International Game Fish Association (IGFA) world-record tiger shark was caught off Cherry Grove Beach, SC, near Myrtle Beach. Charterboat operators advertising shark fishing as special trips or part of general near-shore fishing are found in the communities of Myrtle Beach, North Myrtle Beach, Hilton Head, Georgetown, Pawley's Island, Murrell Inlet, Edisto Beach, Isle of Palms, Seabrook Island, Charleston, Mount Pleasant, Beaufort, and Little River.

### 9.4.13 Georgia

The population in Georgia has increased quite a bit in the last decade, from 6.5 million people in 1990 to 8.2 million people in 2000 (Table 9.20). The labor force (ages 16 and older) and unemployment has remained the same over the past decade, but there was a slight decline in the percentage of individuals below the poverty line. Employment in the farming, fishing, forestry, and mining industries has declined slightly since 1990; there has been only a slight employment increase in the art, recreation, lodging, and food services industries, from one percent to seven percent.

**Table 9.20 Georgia Demographic Profile.** Source: U.S. Census, 1990 and 2000

| Georgia | 1990 | 2000 |
|---|---|---|
| **Population:** | **6,478,216** | **8,186,453** |
| **Education:** | | |
| High school graduates (25 years or older) | 70.9% | 78.6% |
| **Employment:** | | |
| Labor force (16 years and over) | 66.1% | 66.1% |
| Unemployment Rate | 5.5% | 5.5% |
| Median Household Income | $29,021 | $42,433 |
| Individuals below the poverty line* | 14.7% | 13.0% |
| **Employment in some industry sectors:** | | |
| Farming, fishing, forestry & mining | 2.7% | 1.4% |
| Construction | 6.9% | 7.9% |

| Georgia | 1990 | 2000 |
|---|---|---|
| Wholesale trade | 5.1% | 3.9% |
| Retail | 16.5% | 12.0% |
| Manufacturing | 18.9% | 14.8% |
| Education, health & social services | 20.4% | 17.6% |
| Arts, recreation, lodging & food services | 1.0% | 7.1% |

*U.S. Census uses data from 1989 and 1999 to estimate these values.

Commercial shark fishing in Georgia has traditionally been only a very small segment of the commercial fisheries in the state. There are only four vessels that hold shark permits in Georgia (Table 9.38). Both Darien and Townsend, in McIntosh County, have been involved with the commercial shark fishery. There are three dealers permitted to sell HMS such as tunas, sharks, and swordfish (Table 9.37). Twenty-six vessels are permitted to participate in the commercial tuna fisheries (Table 9.36). The number of HMS charter/headboat permits operating in Georgia increased from 27 in 2003 to 40 in 2005 (Table 9.35). Some of the active charter/headboat communities are Columbus, Brunswick, Marietta, Savannah, Atlanta, Alpharetta, and St. Simons Island.

In 2005, Georgia residents held 205 HMS angling permits (Table 9.34). In 2004, marine recreational fishing in Georgia attracted 276,000 anglers, of whom 20 percent (54,000) were from out-of-state and 43 percent from non-coastal counties (NMFS, 2005a). Collectively, these anglers made 929,000 recreational fishing trips in 2004. Saltwater angling is estimated to have generated some $57.8 million in retail sales in Georgia in 2001 and about 10,649 jobs in the marine recreational fishing service sector (ASA, 2002). Principal recreational fisheries are for tarpon and snook inshore, and billfish and tunas offshore. Sharks are taken incidental to these fisheries but there are targeted shark fisheries inshore on spinner, sandbar, and lemon sharks.

### 9.4.14 Florida

Florida's population increased by more than 3 million people between 1990 and 2000 (Table 9.21). The percentage of individuals 25 years and older with a high school diploma and/or a graduate level degree has increased by almost five percent in the last decade. The percentage of employed individuals has declined slight, whereas the unemployment rate and percentage of individuals below the poverty line remained about the same through the nineties. As with many of the other states, employment in the farming, fishing, forestry, and mining industries has declined, whereas the education, health, and social services industries provided the greatest employment opportunities in 2000. Employment in the arts, recreation, lodging, and food services industries has been on the rise in the last decade.

Florida's fishing industry is one of the largest and most diverse in the region. Florida residents hold more than half of the commercial shark permits with 283 permit holders residing in the state (Table 9.38). Some of the large concentrations of permit holders are in Fort Pierce, St. Petersburg, Key West, and Panama City, Florida (Figure 9.6). Florida is also home to the greatest number of swordfish permit holders with 117 permitted vessels (Table 9.39). The large numbers of swordfish permit holders are found in Fort Pierce, Pompano Beach, St. Petersburg, and Panama City. Florida residents hold about five percent of the commercial tuna permits, and are generally spread out along the entire coast of Florida (Table 9.36 and Figure 9.4). Florida

residents also have the greatest number of HMS dealer permits with 137 dealers permitted to purchase and sell tunas, sharks, and swordfish (Table 9.37). A large number of these dealers can be found in Miami, Fort Lauderdale, Key West, and St. Petersburg.

Florida has the largest marine recreational fisheries in the United States. In 2004, approximately 6,534,000 saltwater anglers fished in the waters off Florida and made 27,204,000 fishing trips during that year (NMFS, 2005a). Of these fishermen, 3,291,000 (50 percent) were from out-of-state. More specifically to recreational HMS fisheries, Florida has the greatest number of HMS angling permits in the United States, with 3,439 permitted individuals (Table 9.34). A large concentration of HMS anglers reside in Jupiter, West Palm Beach, Pompano Beach, Fort Lauderdale, and Miami, Florida (Figure 9.2). The retail sales generated by saltwater anglers in Florida in 2001 were estimated to be $2,987.2 million and the marine recreational fishing industry provided 59,418 jobs (ASA, 2002). Sharks are an incidental catch for many fishermen, but some private boat fishermen have a directed fishery for sharks, including lemon, hammerhead, sandbar, blacktip and tiger sharks.

As with the recreational anglers, Florida is also the number one state for HMS charter/headboat permit holders with 632 permitted vessels (Table 9.35). Many of these charter/headboat operators are from Key West, Islamorada, Miami, and Destin, Florida (Figure 9.3). It should be noted that these 634 charterboats/headboats permit holders refer to Florida residents and do not account for the transient vessels traveling to Florida for the winter and spring fishing seasons.

**Table 9.21 Florida Demographic Profile.** Source: U.S. Census, 1990 and 2000

| Florida | 1990 | 2000 |
|---|---|---|
| **Population:** | **12,937,926** | **15,982,378** |
| **Education:** | | |
| High school graduates (25 years or older) | 74.0% | 79.9% |
| **Employment:** | | |
| Labor force (16 years and over) | 60.4% | 58.6% |
| Unemployment Rate | 5.8% | 5.6% |
| Median Household Income | $27,483 | $38,819 |
| Individuals below the poverty line* | 12.7% | 12.5% |
| **Employment in some industry sectors:** | | |
| Farming, fishing, forestry & mining | 3.1% | 1.3% |
| Construction | 7.8% | 8.0% |
| Wholesale trade | 4.6% | 3.9% |
| Retail | 19.6% | 13.5% |
| Manufacturing | 10.5% | 7.3% |
| Education, health & social services | 21.4% | 18.1% |
| Arts, recreation, lodging & food services | 2.3% | 10.5% |

*U.S. Census uses data from 1989 and 1999 to estimate these values.

### *9.4.14.1 Pompano Beach, Florida*

Pompano Beach is a small city directly adjacent to Fort Lauderdale. The Fort Lauderdale area is known as the "Yachting Capital of the World" and the "Venice of America" because of the vast canal system, which extends throughout Broward County and creates 165 miles of waterfront in the region. Recreational fishing is a very important activity in Pompano Beach, mainly targeting billfish. In contrast to many Florida communities, local people in addition to tourists support a substantial amount of the recreational fishing industry. Many small fishing tournaments attract about 75 percent local people and 25 percent tourists. Pompano Beach is also a globally important manufacturing center for commercial longlining equipment with its own small commercial longline fleet (Wilson *et al.*, 1998). As a community, Pompano Beach owes its current infrastructure and social and economic lifestyle to the arrival of the railroad in 1896 to a small coastal settlement. The proximity of good fishing and other natural resources encouraged the town and region's development as tourism and retirement center. The local chamber of commerce sponsors three marine festivals every year.

Between 1990 and 2000, the population increased from 72,411 to 78,191 individuals (Table 9.22). The male to female ratio in the Pompano population changed only slightly in the past decade with a slight decrease in the number of females (48:52 to 49:51). The percent of the total population by each age group remained relatively constant between 1990 and 2000. Since the 1990 Census, the ethnic and racial population of Pompano Beach has shifted to increase the number of "other" ethnicities in the population. In 1990, the population was 70 percent Caucasian and 29 percent Black-American. Twenty percent of the population was of Hispanic ancestry. In 2000, the population consisted of 67 percent Caucasians, 25 percent Black-Americans, and eight percent of people of other ethnicities. The proportion of the population with Hispanic ancestry had dropped to ten percent.

The number of households increased from 31,891 in 1990 to 35,197 in 2000 (Table 9.22). The average household size in Pompano Beach decreased from 2.2 persons/household in 1990 to 2.1 persons/household in 2000. Of the households in 2000, some 69 percent were in receipt of earned income. Some 36 percent of the households received Social Security payments, while 16 percent of households were in receipt of retirement income from pensions (NMFS, 1999a). This suggests that some 30 percent of households were retired and living on fixed incomes. The per capita income for Pompano Beach in 1989 was $17,382, and greater than the state average by $2,684 per annum. In 2000, per capita income in Pompano Beach was $23,938, and greater than the state average income by $2,381. The technical, administrative, and sales industries provide the greatest source of employment, with managerial and professional positions a close second. Employment in the farming, fishing, forestry and mining industries declined from almost 12 percent in 1990 to less than one percent in 2000.

Pompano Beach has a proud longlining heritage and there are several successful businesses that are still involved to some degree with the fleet (Wilson *et al*., 1998). This gives the current small vessel fleet and other longline business some networks of support. At the same time, Pompano Beach is now increasingly a recreational fishing community. In fact, Pompano Beach has the second largest concentration of HMS angling permit holders with 303 residents participating in the HMS recreational fishery (Figure 9.2). Virginia Beach has 316 permit holders. There is a great deal of tension between the recreational fishermen and the longliners.

At the present time, researchers found that the longline fleet is not receiving community support beyond that supplied from within their own industry. Both sides acknowledge a problem with overfished stocks, but each often blames the other side.

Pompano Beach has a small pelagic longline fleet, remnant of a much larger fleet, which mainly targets tunas and swordfish. A large number of swordfish permit holders reside in Pompano Beach (Figure 9.7). There is also some shark fishing farther North along the coast. There are eleven HMS longline permit holders residing in Pompano Beach, Florida. The most intensive local fishing takes place December through April. The longline fleet conducts business with three Pompano Beach dealers permitted for shark and swordfish and one Dania shark and swordfish permitted dealer. The development of the Pompano Beach area for yachting and recreational fishing has made dockage and access to the water more expensive (NMFS, 1999b).

Wilson *et al.* (1998) noted that commercial respondents reported increased difficulty in getting quality crew. The smaller vessels take two crew plus the captain. Owner-operators often try to have at least one consistent crew member, and then find anyone they can for particular trips. The end result of all of these factors has been a substantial reduction of the Pompano Beach longline fleet. Pompano Beach's remaining pelagic and bottom longline fleet is considered, by both its owners and suppliers, to be in major trouble (Wilson *et al*., 1998). Skilled captains were seeking employment in the Bahamas, as well as with the growing longline fleets in South Africa and South America, while the longline supply business has shifted its emphasis to supplying foreign fleets. In the urban economy of Pompano Beach, non-fishing alternatives for fishermen do exist. However, the work force is fairly well-educated, so finding employment could be competitive (Table 9.22). Commercial fishing employment alternatives for vessels and crew are minimal because of limited entry programs in other fisheries.

**Table 9.22 Demographic Profile of Pompano Beach, Florida.** Source: U.S. Census 1990 and 2000.

| Demographics | 1990 | 2000 |
|---|---|---|
| Total Population | 72,411 | 78,191 |
| **Sex** | | |
| Male | 48.2% | 49.3% |
| Female | 51.8% | 50.9% |
| **Age** | | |
| **Median Age** | **39.8** | **42.2** |
| < 20 | 19.8% | 19.7% |
| 20 - 44 | 35.0% | 34.5% |
| 45 - 64 | 19.9% | 22.5% |
| > 65 | 25.3% | 23.4% |
| **Race** | | |
| White | 70.1% | 67.8% |
| Black or African American | 28.6% | 25.4% |
| American Indian and Alaska Native | 0.1% | 0.2% |
| Asian and Pacific Islander | 0.3% | 0.8% |
| Other | 0.9% | 2.0% |
| **Household** | | |
| **Total** | **31,981** | **35,197** |
| Family households | 57.9% | 52.4% |
| Nonfamily households | 42.1% | 47.6% |
| Average household size | 2.26 | 2.13 |
| Average family size | 2.90 | 2.85 |
| **Housing Occupancy** | | |
| Total housing units | 42,179 | 44,496 |
| Vacant housing units | 24.7% | 20.9% |

| Pompano Beach, Florida | 1990 | 2000 |
|---|---|---|
| Population: | 72,411 | 78,191 |
| **Education:** | | |
| High school graduates (25 years or older) | 73.7% | 77.2% |
| **Employment:** | | |
| Labor force (16 years and over) | 52.1% | 53.8% |
| Unemployed | 3.5% | 3.6% |
| Median Household Income | $ 29,683 | $ 36,073 |
| Individuals Below the Poverty Line | 16.0% | 17.0% |
| **Employment in some industry sectors:** | | |
| Managerial/professional | 24.8% | 28.6% |
| Technical, Administrative, & Sales | 31.8% | 30.0% |
| Construction, Production, Maintenance, & Transportation | 3.2% | 11.4% |
| Farming, fishing, forestry, & mining | 11.6% | 0.5% |
| **Industry Code Description** | | |
| Forestry, fishing, hunting, mining, and agriculture | 3.1% | 0.5% |
| Construction | 10.4% | 9.8% |
| Manufacturing | 8.5% | 7.1% |
| Wholesale trade | 5.4% | 4.7% |
| Retail trade | 18.6% | 13.6% |
| Education, health & social services | 13.2% | 14.9% |
| Arts, recreation, lodging & food services | 2.3% | 11.0% |

### *9.4.14.2 Fort Pierce, Florida*

Fort Pierce is located in St. Lucie County, a rapidly developing area in South Florida. St. Lucie County is known as a center for citrus growing, particularly grapefruit. Fort Pierce is on the site of an Army fort built in 1838, and remained an isolated outpost until the railroad reached the town in 1900. Fort Pierce was incorporated in 1901, and soon developed as a center for industry and agribusiness. At the junction of the Florida Turnpike and Interstate 95, Fort Pierce is a thriving intermodal transportation center, distribution point, and tourist stopover point.

Fort Pierce is a community in transition. The community grew rapidly between 1960 and 1990, from a population of 24,857 to 36,830 (Table 9.23). Between 1990 and 2000, the population grew by only two percent, increasing by about 800 people. Changing from a predominantly white community in 1950, the white portion of the population declined to less than half the total in 2000. The black or African American population made up just over 40 percent of the Fort Pierce population. No other ethnic or racial groups dominate the remaining 11 percent of the population. About 30 percent of the population is under 20 years old, whereas another 33 percent is between 20 and 44. The median age in 2000 was 35.4 years old.

**Table 9.23 Demographics of Fort Pierce, Florida.** Source: U.S. Census 1990 and 2000.

| Demographics | 1990 | 2000 |
|---|---|---|
| Total Population | 36,830 | 37,516 |
| **Sex** | | |
| Male | 47.1% | 49.3% |
| Female | 52.9% | 50.7% |
| **Age** | | |
| Median Age | **34.2** | **35.4** |
| < 20 | 30.4% | 30.3% |
| 20 - 44 | 30.8% | 32.7% |
| 45 - 64 | 18.8% | 19.6% |
| > 65 | 20.0% | 17.5% |
| **Race** | | |
| White | 53.8% | 49.5% |
| Black or African American | 42.5% | 40.9% |
| American Indian and Alaska Native | 0.2% | 0.3% |
| Asian and Pacific Islander | 0.4% | 0.9% |
| Other | 3.1% | 5.4% |
| **Household** | | |
| **Total** | **14,283** | **14,407** |
| Family households | 64.4% | 61.2% |
| Nonfamily households | 35.6% | 38.8% |
| Average household size | 2.58 | 2.56 |
| Average family size | 3.21 | 3.19 |
| **Housing Occupancy** | | |
| Total housing units | 17,250 | 17,170 |
| Vacant housing units | 17.8% | 16.6% |
| **Housing Tenure** | | |
| Owner-occupied housing units | 53.3% | 53.2% |
| Renter-occupied housing units | 46.7% | 46.8% |

| Fort Pierce, Florida | 1990 | 2000 |
|---|---|---|
| Population: | 36,830 | 37,516 |
| **Education:** | | |
| High school graduates (25 years or older) | 56.9% | 59.7% |
| **Employment:** | | |
| Labor force (16 years and over) | 48.2% | 55.1% |
| Unemployed | 6.8% | 4.9% |
| Median Household Income | $ 18,913 | $ 25,121 |
| Individuals Below the Poverty Line | 29.2% | 30.9% |
| **Employment in some industry sectors:** | | |
| Managerial/professional | 16.8% | 19.9% |
| Technical, Administrative, & Sales | 28.0% | 20.5% |
| Construction, Production, Maintenance, & Transportation | 9.7% | 9.0% |
| Farming, fishing, forestry, & mining | 10.4% | 31.3% |
| **Industry** | | |
| Forestry, fishing, hunting, mining, and agriculture | 9.8% | 7.8% |
| Construction | 8.2% | 12.6% |
| Manufacturing | 7.1% | 8.0% |
| Wholesale trade | 4.1% | 4.8% |
| Retail trade | 21.0% | 12.5% |
| Education, health & social services | 17.1% | 16.9% |
| Arts, recreation, lodging & food services | 1.1% | 10.8% |

There were 14,407 households in Fort Pierce, with an average household size of 2.56 persons, in 2000. The population is relatively mobile, since only 46 percent lived in the same house in 2000 as they did in 1995. It is also a relatively poor community, with median household income of $25,121 in 2000, and 31 percent of the population living below poverty level. Per capita income in Fort Pierce in 2000 was $14,345, compared to the statewide average per capita income of $21,557, and $9,593 less than the per capita income in Pompano Beach.

These earnings data reflect the unskilled and seasonal nature of jobs in agribusiness, packing plants and transportation businesses in and around Fort Pierce.

Locals refer to Fort Pierce as the "gateway to the Bahamas" because of the number of sport fishing and other vessels which use Fort Pierce as their departure point for the Bahamas and its associated Gulf Stream fisheries for HMS and other species of fish, including shark. In 2003, Fort Pierce hosted 15 fishing tournaments and related marine activities. The city's marina, in conjunction with other marinas and docks along the Indian River, Indian River Lagoon, and Intracoastal Waterway, provides sufficient dockage for recreational boaters and fishermen and for a commercial fishing fleet, principally longliners, but also the shark gillnetters. Fifteen shark and nine swordfish permit holders reside in Fort Pierce (Figure 9.6 and Figure 9.7).

The commercial fishing fleet in Fort Pierce has grown in the past decade due to lost dock space for commercial fleets in nearby ports. With the exception of the gillnet fleet unique to Fort Pierce, the commercial fishery is similar to the commercial fishery of Pompano Beach and is principally conducted during the fall and winter seasons. Smaller vessels switch gears and target species throughout the year, while larger vessels move with the fish stocks and retain the same gear configurations. Dealers and fish processors have also consolidated buying and packing operations in Fort Pierce because of the high cost of doing business in the tourism-related coastal communities North and South of Fort Pierce.

#### *9.4.14.3 Madeira Beach, Florida*

Madeira Beach is part of the Tampa Bay urban complex, one of several beach suburbs of St. Petersburg. The area is the home of the West-central Florida shark bottom longline fleet. Madeira Beach is also home to a thriving recreational HMS fishery. In terms of revenue, tourism is the number one industry in Pinellas County. Annually, four million visitors contribute about two billion dollars to the economy. The tourism industry also employs almost 60,000 of the residents either directly or indirectly, adding up to $720 million in wages (St. Petersburg-Clearwater Visitors Bureau brochure, 1998). The state of the economy since September 2001 has dampened the tourism industry, and Pinellas County Chamber of Commerce reported that the 2002 visitor and expenditure statistics were similar to those of 1998 (PCCC Report, March, 2003).

Madeira Beach's economy has changed with the changing tourism industry. A sign of the times is the renovation of much of the waterfront along St. John's Pass from a working waterfront of docks, fish houses and chandleries to a boardwalk lined with restaurants and boutiques. Many of the slips remaining are assigned to recreational vessel docking and storage. The once-dominant fishing industry is now a shadowy presence in much of Madeira Beach.

The population in Madeira Beach increased by about six percent over the last decade (Table 9.24). In 2000, 97 percent of the population was Caucasian. During the decade, the number of people in the population claiming German ancestry rose from 11 percent to 19.7 percent in 2000, although 92 percent of the population of Madeira Beach was born in the United States. The Madeira Beach population aged during the decade. The median age increased from 34.2 in 1990 to 47.6 in 2000. The number of households in Madeira Beach increased from 2,230 in 1990 to 2,523 in 2000, but the average number of persons in a household declined from 1.88

persons in 1990 to 1.78 in 2000. In 2000, almost 28 percent of the housing units in Madeira were seasonal or recreational units vacant at the time of the Census.

Per capita income in Madeira Beach in 1989 was $17,301; in 1999, per capita income had risen to $30,097, some $8,000 more than the state average per capita income and $15,752 more than the average per capita income in Fort Pierce. Individuals living at or below poverty level comprised 9.8 percent of the Madeira Beach population. Some 72 percent of Madeira Beach's households received earnings from wages or salaries. Twenty-three percent of the households were in receipt of retirement funds or pensions, while 31 percent of the households received income from Social Security. The jobs in farming, fishing, forestry, and mining industries declined over the last decade from just over ten percent to less than one percent (Table 9.24). The industry itself also declined, whereas the arts, recreation, lodging and food services related industries increased from 2.5 percent to over 21 percent.

The offshore fishing industry in Madeira Beach started as a bandit (reel fixed to transom) fishery before it shifted to bottom longlining. Grouper is the traditional fishery for the community. In the 1960s, there were two dealers supported by charterboats selling fish and a small commercial fleet targeting kingfish and grouper. Many species that are now sold in Madeira Beach, such as amberjack, were considered junk fish in earlier years. As demand for seafood began to grow, higher prices accompanied by investment programs led to substantial investment in commercial fishing within this community.

**Table 9.24 Demographic Profile for Madeira Beach, Florida.** Source: U.S. Census 1990 and 2000.

| Demographics | 1990 | 2000 |
|---|---|---|
| Total Population | 4,225 | 4,500 |
| **Sex** | | |
| Male | 50.9% | 52.0% |
| Female | 49.1% | 48.0% |
| **Age** | | |
| **Median Age** | **34.2** | **47.6** |
| < 20 | 11.2% | 9.5% |
| 20 - 44 | 35.3% | 32.5% |
| 45 - 64 | 28.0% | 36.0% |
| > 65 | 25.6% | 21.9% |
| **Race** | | |
| White | 99.8% | 97.4% |
| Black or African American | 0.0% | 0.0% |
| American Indian and Alaska Native | 0.0% | 0.8% |
| Asian and Pacific Islander | 0.2% | 0.0% |
| Other | 0.0% | 1.8% |
| **Household** | | |
| **Total** | **2,230** | **2,523** |
| Family households | 50.5% | 59.8% |
| Nonfamily households | 49.5% | 40.2% |
| Average household size | 1.89 | 1.78 |
| Average family size | 2.49 | 2.39 |
| **Housing Occupancy** | | |
| Total housing units | 3,788 | 3,971 |
| Vacant housing units | 41.1% | 36.5% |

| Madiera Beach, Florida | 1990 | 2000 |
|---|---|---|
| **Population:** | 4,225 | 4,500 |
| **Education:** | | |
| High school graduates (25 years or older) | 83.8% | 87.3% |
| **Employment:** | | |
| Labor force (16 years and over) | 56.9% | 61.5% |
| Unemployed | 1.6% | 2.7% |
| Median Household Income | $ 24,748 | $ 36,671 |
| Individuals Below the Poverty Line | 8.4% | 9.8% |
| **Employment in some industry sectors:** | | |
| Managerial/professional | 35.3% | 30.4% |
| Technical, Administrative, & Sales | 31.2% | 28.9% |
| Construction, Production, Maintenance, & Transportation | 1.4% | 17.8% |
| Farming, fishing, forestry, & mining | 10.3% | 0.7% |
| **Industry** | | |
| Forestry, fishing, hunting, mining, and agriculture | 1.4% | 0.0% |
| Construction | 8.8% | 7.0% |
| Manufacturing | 7.5% | 11.3% |
| Wholesale trade | 4.5% | 4.1% |
| Retail trade | 30.7% | 11.4% |
| Education, health & social services | 11.4% | 7.9% |
| Arts, recreation, lodging & food services | 2.5% | 21.6% |

Longline vessels began to target swordfish in the 1970s, using cloth and nylon line before monofilament longlining was commonly used. Local availability of swordfish declined quickly and a group of vessels went North to look for fish. On their way back they set longline gear in deep water and caught a significant amount of shark, tilefish and yellowedge grouper; this was

how the bottom longline fishery in Madeira Beach began (Wilson *et al*., 1998). Marginal swordfish vessels began to experiment with various techniques such as straight hooks, auto-baiters and circle hooks. The Madeira Beach fleet is currently 95 percent bottom longline vessels. There are three seafood dealers in this community, two of which were permitted to sell HMS species in 2005. One dealer estimated that before restrictions on shark fishing his business used to be 45 percent grouper, 45 percent shark, and ten percent swordfish and tuna; now it is 75 percent grouper, ten percent shark and 15 percent swordfish and tuna (Wilson *et al.*, 1998). With the imposition of the live-bait ban in 2000, the swordfish and tuna landings have decreased appreciably.

Sharks and grouper are both caught with bottom longline gear. For this reason, the majority of longline fishermen hold permits for multiple fisheries. Due to the various regulations for all of the fisheries, the maximum number of trips fishermen can make is about 15 trips a year, as a bottom longline trip lasts some seven to fourteen days. Grouper fishermen are subject to limited access, a minimum size, area restrictions, seasonal closures, and a quota.

Overall, the Madeira Beach bottom longliners are becoming fewer and more isolated from the rest of the fishing community (Wilson *et al*., 1998). Respondents say that antagonism and competition among dealers has gotten worse in recent years as vessels drop out of fishing, often being sold outside of the country. Many of these crews are living trip to trip and often need credit for engine repair, ice, fuel and even household and personal items. Both the fishermen and an engine supplier reported that the commercial fleet is spending more on maintaining existing gear and vessels rather than buying new equipment. Traditional patterns of dealers building relationships by extending services and credit to vessels are giving way to price-based competition to gain access to vessels (NMFS, 1999a).

Fishermen in this community have experienced restrictions on gear, harvest, and capacity in many of its important fisheries. Wilson *et al.* found that alternative employment outside of the fishery is available through expanding opportunities in the tourism and recreational fishing industries. However, this relatively ready supply of alternative employment threatened the stability of the labor pool for the fishing industry. Some reported that the best captains are leaving the country or moving on to other jobs. Like many other fishing communities, the longline fleet in Madeira Beach is experiencing market competition from imports of their target species (Wilson *et al*., 1998; NMFS, 1999a).

When the shark bottom longline fishery began in Florida, it was easy to catch sharks, but the catch from the bottom longline fishery has become marginal due to restrictions and increased steam time to fishing grounds (Wilson *et al*., 1998). Members of the fishing and supply industries reported price fluctuations in the shark fishery, which they attributed to the difficulty in maintaining steady supplies under derby-style quota management. The fins bring the most money and are exported to Asian nations. Shark trips have to be kept as short as possible to maintain good quality meat. Respondents suggest that regulations, particularly the 4,000-pound shark commercial retention limit, have turned the fishery into a small vessel fishery. Some fishermen keep both grouper and shark gear on board (NMFS, 1999a).

Approximately 50 to 60 charter/headboats participated in the recreational fisheries of Madeira Beach during the 1990s, and more than 48,000 pleasure vessels were registered in Pinellas County (Florida Bureau of Vessel Titling and Registration, 1996 and 1997). Researchers found tension and distance between the recreational and commercial fishing communities to be high, and recreational fishermen tend to maintain that commercial fishing is to blame for the declining shark populations (Wilson *et al*., 1998). Shark fishing is comparatively less important to recreational fishing in Madeira Beach than other HMS, although researchers reported that the local recreational shark fisheries are very healthy (NMFS, 1999a).

The renewal and renovation of the town's waterfront, particularly on John's Pass, removed many of the berths and infrastructure, which supported both the charterboat fleet and the commercial fishing fleet. In 2005, there was one charter/headboat with HMS permits holders living in Madeira Beach. Additionally, the Madeira Beach shark tournaments, which were mostly sponsored by a vessel or engine manufacturer, are no longer held due to loss of this infrastructure. Stores sell very little shark tackle, but some maintain the industry is beginning to come back. The miles-long remainder of the old Sunshine Skyway bridge is now used as a pier for recreational shark fishing. It is estimated that recreational shark fishing in this community is 90 percent catch-and-release (NMFS, 1999a).

#### *9.4.14.4 Panama City, Florida*

Panama City is located on the Gulf of Mexico in the Florida Panhandle. Panama City is one of the Florida's top fishing centers offering surf fishing, pier fishing, and charter/headboat fishing, according to the Panama City Tour Guide (NMFS, 2003). According to the Florida Bureau of Vessel Titling and Registration, the county has a total of 16,865 registered vessels with 15,359 pleasure and 1,433 commercial vessels. Headboats are an important part of Panama City's tourism. People enjoy bringing children along since these trips are shorter than charterboat trips. Panama City is a summer resort, with little tourist activity in the winter, as well as an important commercial fishing port.

During the winter, recreational fishermen target bottom fish and bluefish. In March, the season begins for Spanish mackerel, cobia, snapper, bonito, little tunny, amberjack, snapper, red porgies, rudder fish, blue runner, bluefish, and redfish. By summer, they also fish for king mackerel, dolphin fish, wahoo, little tunny, and barracuda. White marlin, blue marlin, and sailfish are caught recreationally in late summer. Some charterboats will go shark fishing at night for extra income. In September, the fishery is very mixed, and in October, king mackerel and bonito are popular. Tourists are mainly interested in bottom fishing. Motivations have changed; people used to be interested in catching a lot of fish and taking it home to eat or sell, but now people are satisfied to catch anything (Wilson *et al*., 1998; NMFS, 1999a).

Between 1990 and 2000, Panama City experienced a modest increase in its population from 34,378 in 1990 to 36,417 in 2000 (Table 9.25). Since 1990, there has been an increase in the male population with a corresponding decrease in the female portion of the total population; males: 47 to 49 percent and females: 53 to 51 percent. The Panama City population did get older in the past decade the median age increased from 34 years old to about 37 years old. Correspondingly, the greatest portion of the population in both decades was in the 20 – 44 years old age bracket.

Panama City had 14,033 households in 1990, and the number of households grew to 14,819 in 2000 (Table 9.25). The average household size decreased from 2.37 persons in 1990 to 2.30 persons in 2000, indicating that there might be an increase in "empty nesters" and retiree households. The percentage of individuals below the poverty line decreased slightly over the past decade from almost twenty to seventeen percent. In 1989, the per capita income in Panama City was $12,169 and was significantly lower than the state average per capita income of $14,698. This situation persisted in 1999, when the Panama City per capita income had increased to $17,830, but continued to be less than the Florida average of $21,557 per capita.

Like Fort Pierce, Panama City is a transportation hub and has an agricultural and industrial base in addition to its fisheries. Panama City's commerce rests on a supply of unskilled labor able to service agribusiness, transportation services, and the tourism industry. Panama City has two city marinas in addition to private commercial operations. The Panama City marina is located downtown on the Intracoastal Waterway and provides 240 berths for recreational, commercial and charter/headboat vessels. The second municipal marina, St. Andrews, lies on St. Andrews Bay, closer to the Gulf of Mexico, and provides docking and other facilities for much of the commercial fishing fleet. This fleet is chiefly composed of shrimp boats. Seven charter/headboats are based in the city marinas. There are thirty Panama City residents with an HMS charter/headboat permit (Figure 9.3). While the largest local employers are hospitals and resort hotels, two shipyards between them employed 650 persons in 2003 (Panama City/Bay County Chamber of Commerce, 2003).

**Table 9.25 Demographic Profile for Panama City, Florida.** Source: U.S. Census 1990 and 2000.

| Demographics | 1990 | 2000 |
|---|---|---|
| Total Population | 34,378 | 36,417 |
| **Sex** | | |
| Male | 46.7% | 48.6% |
| Female | 53.3% | 51.4% |
| **Age** | | |
| **Median Age** | **33.9** | **37.2** |
| < 20 | 28.6% | 25.6% |
| 20 - 44 | 34.9% | 36.8% |
| 45 - 64 | 19.6% | 21.7% |
| > 65 | 16.9% | 16.0% |
| Race | | |
| White | 76.1% | 73.6% |
| Black or African American | 21.0% | 21.5% |
| American Indian and Alaska Native | 0.7% | 0.6% |
| Asian and Pacific Islander | 1.6% | 1.6% |
| Other | 0.6% | 0.8% |
| **Household** | | |
| **Total** | **14,033** | **14,819** |
| Family households | 69.2% | 61.0% |
| Nonfamily households | 30.8% | 39.0% |
| Average household size | 2.37 | 2.30 |
| Average family size | 2.90 | 2.92 |
| **Housing Occupancy** | | |
| Total housing units | 15,928 | 16,548 |
| Vacant housing units | 11.8% | 10.4% |
| **Housing Tenure** | | |
| Owner-occupied housing units | 58.3% | 57.8% |
| Renter-occupied housing units | 41.7% | 42.2% |

| Panama City Beach, Florida | 1990 | 2000 |
|---|---|---|
| **Population:** | 34,378 | 36,417 |
| **Education:** | | |
| High school graduates (25 years or older) | 70.3% | 79.2% |
| **Employment:** | | |
| Labor force (16 years and over) | 54.0% | 53.9% |
| Unemployed | 4.6% | 3.1% |
| Median Household Income | $ 21,881 | $ 31,572 |
| Individuals Below the Poverty Line | 19.6% | 17.2% |
| **Employment in some industry sectors:** | | |
| Managerial/professional | 25.9% | 32.2% |
| Technical, Administrative, & Sales | 32.2% | 27.7% |
| Construction, Production, Maintenance, & Transportation | 1.5% | 19.0% |
| Farming, fishing, forestry, & mining | 10.2% | 0.4% |
| **Industry** | | |
| Forestry, fishing, hunting, mining, and agriculture | 1.6% | 0.5% |
| Construction | 7.0% | 6.7% |
| Manufacturing | 7.7% | 7.0% |
| Wholesale Trade | 3.3% | 0.1% |
| Retail Trade | 21.4% | 13.8% |
| Education, health & social services | 19.4% | 22.2% |
| Arts, recreation, lodging & food services | 1.5% | 14.2% |

In the early 1980s, yellowfin tuna was the main commercial fishery for Panama City from April through December while bluefin tuna were targeted in the winter. Some of the longline vessels shifted from yellowfin tuna fishing to bottom longline fishing for grouper and

sharks in 1998, since the latter required fewer crew members (Wilson *et al*., 1998). Some of these vessels targeted dolphin fish in the summer, and swordfish more rarely. In 1998, two of these vessels were owner operated, two were owned by a dealer, three were each owned by a single person who hired a captain, and two others were jointly owned and had hired captains (Wilson *et al*., 1998). In 2005, ten longline vessels held an HMS permit; 20 shark permits and 12 swordfish permits were issued to residents of Panama City.

Some pelagic longline fishermen also participated in the reef fish and bottom longline fishery. There were 16 to 19 grouper vessels operating out of Panama City in 1998. One fish trader interviewed by the researchers in 1998 reported that his current business was 87 percent yellowfin tuna and eight percent snapper, with the remainder being a mix of swordfish, bluefin tuna, dolphin, wahoo, sandbar shark, and escolar. He bought from about ten vessels in 1998, but had bought from 30 vessels a few years ago (Wilson *et al.*, 1998). The prohibition on the use of live bait in 2000 reduced the tuna and swordfish catches of the commercial fleet and increased use of bottom longline for grouper and shark.

While Panama City was developing tourist and recreational fishing industries, the commercial fishermen were becoming fewer and more isolated from the rest of the community. The competition among dealers was perceived as becoming more aggressive in 1997 - 1998. Traditional patterns of dealers building relationships by extending services and credit to vessels in the shrimp and longline fisheries were giving way to price-based competition to gain access to vessels. Fishermen in this community had experienced restrictions on gear, harvest, and capacity in many important fisheries. Researchers found in 1998 that alternative employment outside of the fishery was available in the developing tourism and recreational fishing industries. However, researchers concluded that this relatively ready supply of alternative employment threatened the stability of the labor pool for the fishing industry (Wilson *et al*., 1998).

#### *9.4.14.5 Islamorada, Florida*

Located in the Florida Keys, Islamorada calls itself the Sportfishing Capital of the World because of its proximity to the Florida Bay, the Everglades, bonefish flats, coral reefs and the Gulf Stream. Islamorada is famous for light tackle technique and many different rods have been developed in this community. It is now increasingly a recreational fishing community, with many charterboats that troll for yellowtail snapper, grouper, blackfin tuna, dolphin, wahoo and billfish in inshore waters. Recreational activities in the Keys consist of trophy fishing, catch-and-release, spearfishing, and fishing for food. In the past decade or so, there has been a growing interest in the guided fishing industry that promotes catch-and-release (NMFS, 1999a). According to the Florida Bureau of Vessel Titling and Registration, Monroe County has a total of 23,079 registered vessels, with 18,731 pleasure and 4,260 commercial vessels as of 1996. In 1998, there were eleven marinas in Islamorada (Wilson *et al*., 1998).

Tournaments are an important marketing device for tourism in this town. The majority of vessels in Islamorada tournaments are Florida vessels, but there are some out-of-state participants. The Tourist Development Council of the Florida Keys has a large marketing budget and gives grants and sponsorship to tournaments. One tackle shop employed 57 people in 1998 and planned to open a fishing school next year that would employ six teachers and teach 24 people at a time for three to four days. Other water-related tourist businesses include powerboat

rentals, boat tours, cruises, kayak, wave runner and sailboat rentals, snorkel and dive shops, boat dockage, lifts and repair shops, and fishing supply shops.

The largest resort in Islamorada began as a fishing marina and sportfishing is a big part of their marketing. The resort has two sets of vessels offshore and "back country," the local term for the Florida Bay area. There are 19 "six-pack boats" which are charterboats and one headboat. In the winter, charter/headboats target sailfish, blackfin tuna, and bonito. Recreational fishermen in this community generally feel that retention limits, minimum sizes, voluntary catch-and-release, and other management measures are effective. Florida's ban on inshore net fishing is also considered a success. Sea trout, bonefish, pompano, and Spanish mackerel are plentiful as a result of the net ban.

According to the Monroe County Cooperative Extension Service, fishing is better as a result of regulations. However, some charter/headboat captains are pessimistic about the future. They feel that the overall fishing is not good, and they have lost customers because there are not as many fish to target (Wilson *et al*., 1998). There is a general concern in Islamorada that it would be devastating to the community if the fish stocks were depleted. There are a lot of concerns with habitat such as the loss of grass beds, destruction of mangrove shoreline, water quality, algae blooms, and coral reefs dying from ozone depletion and too much sunlight. Some people are concerned with runoff from the lower part of the peninsula including phosphates and exhaust. There is also a concern over an increasing number of fishermen in the area (Wilson *et al*., 1998).

Islamorada has been subject to considerable expansion. In 1990, the population was 1,220 individuals and in 2000, it was 6,846 - 429.5 percent increase over a ten-year period (Table 9.26). The population was roughly half male and half female in both census years. The pattern of age distribution, however, changed between 1990 and 2000. The population in Islamorada is older than Fort Pierce, Pompano, and Panama City. The median age increased from just over 42 years to just over 46 years old over the past decade. The dominant age group shifted from 20 – 44 years old to 45 – 64 years old. Islamorada has a very well educated population with almost 92 percent having at least graduated high school.

The labor force has declined over the past decade indicating that the population is aging (Table 9.26). While the median household income and the percentage of individuals above the poverty line increased, the employment rate also increased slightly. In both 1990 and 2000, the greatest source of employment is in the technical, administrative, and sales industry sectors. Employment in farming, fishing, forestry, and mining decreased by one half. Correspondingly, the forestry, fishing, mining, and agriculture industry decreased by one half. The largest industry in Islamorada was retail trade in 2000.

Due to limited range and safety concerns about venturing farther offshore, Islamorada has a small vessel longline fleet that fishes year-round in nearby waters. While these vessels are experiencing increased difficulty with finding crew, this is significantly less of a problem for them than for larger pelagic longline vessels. Researchers found that the commercial fishing community has an increasingly smaller niche relative to recreational fisheries. They cited limited entry in the snapper, king mackerel, and crab fisheries; a ban on net use in inshore waters

in Florida; and incidental catch limits for bluefin tuna as limiting factors for the commercial fisheries. Florida Keys National Marine Sanctuary has also proposed a "no take" zone policy, which will put many commercial fishermen out of business (NMFS, 1999a).

Skilled captains were seeking employment in the Bahamas, as well as the growing longline fleets in South Africa and South America, while the longline supply business has shifted its emphasis to supplying foreign fleets. In Islamorada, a growing recreational fishing industry provides alternative employment opportunities for commercial fishermen familiar with charter/headboats and as fishing guides. In fact, there is a significant concentration of charter/headboat permits issued to Islamorada residents, 27 permitted vessels in 2005. However, the Islamorada work force is fairly well educated, so finding alternative employment could be competitive.

**Table 9.26 Demographic Profile for Islamorada, Florida.** Source: U.S. Census, 1990 and 2000.

| Demographics | 1990 | 2000 |
|---|---|---|
| Total Population | 1,293 | 6,846 |
| **Sex** | | |
| Male | 54.2% | 53.0% |
| Female | 45.8% | 47.0% |
| **Age** | | |
| Median Age | **42.3** | **46.2** |
| < 20 | 13.3% | 17.0% |
| 20 - 44 | 40.8% | 30.6% |
| 45 - 64 | 26.7% | 35.6% |
| > 65 | 19.2% | 16.9% |
| **Race** | | |
| White | 95.3% | 96.8% |
| Black or African American | 0.9% | 0.5% |
| American Indian and Alaska Native | 0.0% | 0.2% |
| Asian and Pacific Islander | 0.0% | 0.7% |
| Other | 3.9% | 0.8% |
| **Household** | | |
| **Total** | **672** | **3,174** |
| Family households | 51.6% | 58.4% |
| Nonfamily households | 48.4% | 41.6% |
| Average household size | 1.92 | 2.10 |
| Average family size | 2.54 | 2.63 |
| **Housing Occupancy** | | |
| Total housing units | 966 | 5,461 |
| Vacant housing units | 32.4% | 41.9% |
| **Housing Tenure** | | |
| Owner-occupied housing units | 65.9% | 71.1% |
| Renter-occupied housing units | 34.1% | 28.9% |

| Islamorada, Florida | 1990 | 2000 |
|---|---|---|
| **Population:** | 1,293 | 6,846 |
| **Education:** | | |
| High school graduates (25 years or older) | 77.8% | 91.7% |
| **Employment:** | | |
| Labor force (16 years and over) | 73.2% | 62.9% |
| Unemployed | 0.9% | 2.3% |
| Median Household Income | $ 26,266 | $ 41,522 |
| Individuals Below the Poverty Line | 9.1% | 6.9% |
| **Employment in some industry sectors:** | | |
| Managerial/professional | 25.9% | 28.0% |
| Technical, Administrative, & Sales | 30.7% | 30.0% |
| Construction, Production, Maintenance, & Transportation | 7.8% | 17.9% |
| Farming, fishing, forestry & mining | 7.9% | 3.9% |
| **Industry** | | |
| Forestry, fishing, hunting, mining, and agriculture | 6.8% | 3.7% |
| Construction | 3.8% | 6.6% |
| Manufacturing | 4.6% | 1.9% |
| Wholesale trade | 2.9% | 1.2% |
| Retail trade | 39.4% | 20.2% |
| Education, health & social services | 6.1% | 12.7% |
| Arts, recreation, lodging & food services | 3.2% | 21.1% |

### 9.4.15 Alabama

The population in Alabama has increased by about 400,000 people between 1990 and 2000 (Table 9.27). The percentage of individuals 25 years and older with a high school diploma and/or some graduate level degree has increased by about eight percent. The percentage of employed individuals, unemployment rate, and percentage of individuals below the poverty line have declined slightly in the last decade. As with many of the other states, employment in the farming, fishing, forestry, and mining industries has declined, whereas the education, health, and social services industries provided the greatest employment opportunities in 2000. Also, the arts,

recreation, lodging, and food services, and manufacturing industries have been the greatest source of employment Alabama residents over the past decade.

In 2005, Alabama residents held 20 commercial tuna permits (Table 9.36). There are seven commercial shark permits allocated to Alabama residents and three swordfish permit (Table 9.38 and Table 9.39). The communities involved in the shark fishery are Andalusia, Bayou la Batre, Elba, Elberta, Gulf Shores, and Lillian. There are five licensed HMS dealers working in coastal Alabama (Table 9.37). Alabama residents hold about one percent or less of the commercial tuna, shark, and swordfish permits; therefore, no community profiles have been developed to date.

The marine recreational fishery off Alabama attracted 806,000 anglers in 2004, who made 2.0 million fishing trips (NMFS, 2004b). Of these recreational fishermen, 398,000 (49 percent) are from out-of-state and another 183,000 anglers (22.7 percent) are from non-coastal counties within Alabama. In 2005, there were 320 Alabama residents who held an angling permit to fish recreationally for HMS (Table 9.34). A large number of these anglers are in Mobile, Alabama. The estimated retail sales generated by saltwater anglers in Alabama in 2001 were valued at $235.9 million. Some 5,477 jobs were attributed to the marine recreational fishing industry in 2001 (ASA, 2002). Thus recreational fishing off Alabama also benefits the local tourist industry as it does in Florida. Shark fishing is largely incidental to recreational fishing for other fish species.

**Table 9.27 Alabama Demographic Profile.** Source: U.S. Census, 1990 and 2000.

| Alabama | 1990 | 2000 |
|---|---|---|
| **Population:** | **4,040,587** | **4,447,100** |
| **Education:** | | |
| High school graduates (25 years or older) | 66.9% | 75.3% |
| **Employment:** | | |
| Labor force (16 years and over) | 61.1% | 59.7% |
| Unemployment Rate | 6.9% | 6.2% |
| Median Household Income | $23,597 | $34,135 |
| Individuals below the poverty line* | 18.3% | 16.1% |
| **Employment in some industry sectors:** | | |
| Farming, fishing, forestry & mining | 3.03% | 1.90% |
| Construction | 7.1% | 7.6% |
| Wholesale trade | 4.1% | 3.6% |
| Retail | 16.2% | 12.2% |
| Manufacturing | 22.9% | 18.2% |
| Education, health & social services | 21.6% | 19.3% |
| Arts, recreation, lodging & food services | 0.9% | 6.4% |

*U.S. Census uses data from 1989 and 1999 to estimate these values.

There are 78 vessels with an HMS charter/headboat permit in Alabama (Table 9.35). A significant number of these vessels are located in Orange Beach (34.5 percent). Some other communities with several charter/head boat permit owners are Birmingham, Mobile, Gulf Shores

and Dauphin Island. There is a small, directed shark fishery advertised by some of the charter/headboats, but most take shark incidentally to other fish species throughout the year.

### 9.4.16 Mississippi

Between 1990 and 2000, Mississippi's population increased from 2.6 million people to 2.8 million people (Table 9.28). The percentage of individuals 25 years and older with a high school diploma and/or some graduate level degree has increased significantly by almost 24 percent. The percentage of employed individuals has remained the same over the past decade, while the unemployment rate declined slightly and percentage of individuals below the poverty line declined by almost five percent. As with many of the other states, employment in the farming, fishing, forestry, and mining industries has declined, whereas the education, health, and social services industries provided the greatest employment opportunities in 2000. Also, the arts, recreation, lodging, and food services industries have been growing source of employment in Mississippi over the past decade.

Eight Mississippi residents held a commercial tuna permit in 2005 (Table 9.36). As for other HMS-related permits, there are eight residents that held a shark permit and two that held a swordfish permit (Table 9.38 and Table 9.39). Communities involved in the commercial shark fishery are Moss Point, Biloxi, and Pascagoula. Only one HMS permitted dealer resided in Mississippi during 2005 (Table 9.37).

Mississippi's saltwater recreational fisheries attracted approximately 278,000 anglers in 2004 (NMFS, 2005a). Fifty-four thousand (19 percent) of these anglers were from out-of-state, and 29,000 (10 percent) were from non-coastal counties within Mississippi. In 2005, there were 194 Mississippi residents with an HMS angling permit (Table 9.34). The ASA estimated that marine recreational fishing generated $50.5 million in retail sales in Mississippi in 2001 and some 1,003 jobs (ASA, 2002). There are 36 charter/headboats with HMS permits home-ported in Mississippi (Table 9.35). Communities involved in the charter and headboat fishery include Biloxi, Gautier, Gulfport, Long Beach, Pascagoula, Pass Christian, and Picayune. Biloxi and Gulfport are each homeport to about one-third of the charter and head boat fleet with HMS permits.

**Table 9.28 Mississippi Demographic Profile.** Source: U.S. Census, 1990 and 2000.

| Mississippi | 1990 | 2000 |
|---|---|---|
| **Population:** | **2,573,216** | **2,844,658** |
| **Education:** | | |
| High school graduates (25 years or older) | 64.3% | 87.9% |
| **Employment:** | | |
| Labor force (16 years and over) | 59.7% | 59.4% |
| Unemployment Rate | 8.4% | 7.4% |
| Median Household Income | $20,136 | $31,330 |
| Individuals below the poverty line* | 25.2% | 19.9% |
| **Employment in some industry sectors:** | | |
| Farming, fishing, forestry & mining | 4.6% | 3.4% |
| Construction | 6.4% | 7.6% |

| Mississippi | 1990 | 2000 |
|---|---|---|
| Wholesale trade | 3.8% | 3.4% |
| Retail | 16.1% | 11.8% |
| Manufacturing | 23.4% | 18.3% |
| Education, health & social services | 22.5% | 20.1% |
| Arts, recreation, lodging & food services | 0.7% | 8.3% |

*U.S. Census uses data from 1989 and 1999 to estimate these values.

Marine recreational fishing in Mississippi has three modes: shoal water fishing along salt-water marshes, behind barrier islands, and in the sounds; near-shore fishing in relatively shallow water out to some 15 miles from shore, including trips to artificial reefs and oil platforms; and offshore fishing in deeper water with HMS species as a target. Sharks are, however, taken in all three modes and it is reported that some are retained for personal use by anglers.

### 9.4.17 Louisiana

The population of Louisiana has not changed by much in the past decade, 4.2 million people in 1990 and 4.5 million people in 2000 (Table 9.29). The percentage of individuals 25 years and older with a high school diploma and/or some graduate level degree has increased by almost seven percent. The percentage of employed individuals has remained the same over the past decade, while the unemployment rate and percentage of individuals below the poverty line have declined. As with many of the other states, employment in the farming, fishing, forestry, and mining industries has declined, whereas the education, health, and social services industries provided the greatest employment opportunities in 2000. Also, the arts, recreation, lodging, and food services industries have been growing source of employment over the past decade.

Louisiana was second only to Alaska in the quantity of its commercial fisheries in the United States in 2003 and fifth in value (NMFS, 2004b). Several of Louisiana's communities were in the top ten major U.S. ports for the greatest quantity of commercial fishery landings: Empire-Venice, Intracoastal, and Cameron. Two communities were ranked in the top ten for the value of the commercial fishery landings: Empire-Venice and Dulac-Chauvin, Louisiana. The menhaden fishery is based in Venice, while shrimping is the principal fishery in Dulac. Both of these fisheries have declined during the past two decades, from the peak year of Louisiana commercial landings in 1984 when 1,931,027,000 pounds of fish were landed in the state.

**Table 9.29 Louisiana Demographic Profile.** Source: U.S. Census, 1990 and 2000.

| Louisiana | 1990 | 2000 |
|---|---|---|
| **Population:** | **4,219,973** | **4,468,976** |
| **Education:** | | |
| High school graduates (25 years or older) | 68.0% | 74.8% |
| **Employment:** | | |
| Labor force (16 years and over) | 59.3% | 59.4% |
| Unemployment Rate | 9.6% | 7.3% |
| Median Household Income | $21,949 | $32,566 |
| Individuals below the poverty line* | 23.6% | 19.6% |
| **Employment in some industry sectors:** | | |

| Louisiana | 1990 | 2000 |
|---|---|---|
| Farming, fishing, forestry & mining | 5.7% | 4.2%* |
| Construction | 6.8% | 7.9% |
| Wholesale trade | 4.5% | 3.5% |
| Retail | 17.5% | 11.9% |
| Manufacturing | 12.5% | 10.1% |
| Education, health & social services | 25.3% | 21.7% |
| Arts, recreation, lodging & food services | 1.1% | 9.1% |

*U.S. Census uses data from 1989 and 1999 to estimate these values.

Eighty-six Louisiana residents held a commercial tuna permit in 2005 (Table 9.36). Louisiana was home to the third largest number of shark permit holders with 47 permitted vessels (Table 9.38). Sixteen of those permit holders live in New Orleans, Louisiana (Figure 9.4). The largest concentrations of shark vessels were home ported in New Orleans, Houma, Dulac, and Gretna. There are also 43 swordfish permit holders in Louisiana (Table 9.39). To support these HMS fisheries, there are 25 dealers licensed to purchase and sell tunas, sharks, and/or swordfish in Louisiana.

The recreational saltwater fisheries off Louisiana attracted some 1,102,000 anglers in 2004, collectively making 4,810,000 fishing trips (NMFS, 2005a). Of these anglers, 19 percent (207,000) were from out-of-state, while 13 percent were from non-coastal counties within Louisiana. There were 602 HMS angling permit holders residing in Louisiana during 2005 (Table 9.34). The ASA estimated that salterwater angling generated some $409.6 million in Louisiana in 2001, and 7,786 jobs in marine recreational fisheries (ASA, 2002). The center of fishing activity is off the Mississippi delta, and ports like Boothville-Venice, Port Fourchon and Grand Isle with good road access to the metropolitan areas of Baton Rouge and New Orleans, benefit from their access to good bottom-fishing areas and to "blue-water" areas offshore. Sharks are taken in both the bottom-fishery and in the blue-water fishery.

In 2005, there are 90 charter/headboats with HMS permits operating from Louisiana communities. The majority of websites sampled show that sharks is a component of most trips offered by these vessels. Communities involved in the charter and head boat fishery for sharks include Venice, New Orleans, Chauvin/Dulac, Houma, Baton Rouge, Golden Meadow, Belle Chase, Metaire, Grande Isle, Cut-Off, Chalmette, Lake Charles, and Monroe.

As described in Section 9.2.2.1, the impacts from Hurricanes Katrina and Rita have been devastating to Louisiana and many Gulf Coast communities. NMFS is involved in several studies to determine the full economic and social impacts of these hurricanes.

#### *9.4.17.1 Venice, Louisiana*

Venice is another Louisiana community with historical ties to the commercial fishing industry. Venice has a strong focus on commercial fisheries, and cites the large volume of local shrimp landings and numerous residents involved in the fishing industry as evidence. Many residents fish commercially, at least on a part-time basis (Impact Assessment, 2004). In the past 20 years, however, oil and recreational fishing have become increasingly important for the economy of Venice. Wilson *et al*. (1998) note, however, few if any, Venice residents

commercially harvest highly migratory species. Boothville-Venice is a "census designated place" and the Bureau of the Census statistics includes both small communities. Similarly, NMFS links Empire and Venice as a single port. Thus, both the port and community are referred to as Venice in this document.

The population of Venice has declined from 2,743 in 1990 to 2,220 in 2000 (Table 9.30). There is a slightly greater percentage of males compared to females in the population. The median age increased from about 26 to 32 between 1990 and 2000. The number of individuals under 20 declined by almost seven percent, while those 45 and older increased by almost seven percent in the last decade. Whites account for a majority of the resident population, but blacks or African Americans accounted for about 29 percent of the total population in both 1990 and 2000. Despite apparent overall out-migration, numerous families of Vietnamese and Cambodian ancestry have moved to the area over the last decade (Impact Assessment, 2004). While many initially went into the fishing industry, more recently, there has been an apparent shift among many new arrivals toward citrus farming.

In 1990, there were 836 households with an average size of 3.23 people. The number of households decreased to 746 in 2000 and the average household size had dropped to 2.96 people. The number of people employed in farming, fishing, forestry, and mining decreased over the last decade from 16.9 percent to 11 percent. The forestry, fishing, hunting, mining, and agriculture industries continued to make up twenty-two percent area's businesses. Retail trade is the second largest industry in the area.

In 1990, thirty-six percent of the population of Venice lived below the poverty level, but this figure dropped to 18 percent in 2000 (Table 9.30). In 1990, the median household income was $16,250. Eighteen percent of the households in Venice in 1990 received Social Security, averaging $5,433 per year, and 11 percent of the households received public assistance income, averaging $3,301 per year (NMFS, 1999a). In 2000, the per capita income of Venice residents was $13,123, while the per capita income for the state of Louisiana had increased to $16,912.

Venice is located about 30 miles south of the parish seat Point à la Hache, which is flanked by eroding wetlands and levees that border the Mississippi River. The unemployment rate is low compared to that of Dulac, perhaps because Venice has been the epicenter of oil industry activity in Louisiana. The main job opportunities in Venice are oil, seafood harvest and processing and, increasingly, recreational fishing (Wilson *et al*, 1998). Fishing infrastructure in Venice is extensive. There are several seafood dealers and docks; sale and repair facilities for commercial and recreational boats, bait shops, ice houses, boat launches, and several small marinas and marine suppliers (Impact Assessment, 2004). One of the marinas, the Cypress Cove Marina and Lodge, is a large facility offering boat storage, charter services, guided waterfowl hunting with air boat transportation, hotel, restaurant, and various support services essential for recreational fishing and hunting (Impact Assessment, 2004). The majority of business is sport-recreational. Venice extends into the Gulf of Mexico close to billfish areas that are frequented by recreational fishermen. Recreational fishing increased steadily there during the 1990s (Wilson *et al*., 1998).

Marina owners suggest that commercial fishing activity has declined over the last several years, and that Venice residents seem to be more focused on recreational fishing and oil field support. A local retail seafood dealer suggests that Louisiana's unpredictable weather and foreign shrimp imports are detrimentally affecting the local commercial fleet. Other informants suggest that the commercial fishing fleet is struggling in many ways, but that the involvement of the larger community in alternative industries, such as offshore oil field support and citrus, is keeping the local economy fairly dynamic (Impact Assessment, 2004).

Animosity regarding competition for fish extends to the political arena, as commercial and recreational fishermen oppose each other on regulatory issues. Commercial fishery participants claim that law enforcement agents harass them, while recreational fishery participants claim that regulations are not enforced in Venice because there are simply not enough agents to cover the area. Among local commercial fishermen, there is a sense that recreational fishermen have helped create a regulatory environment that is pushing commercial fishermen out of business (Wilson *et al*., 1998).

Most of the commercial vessels landing in Venice are home-ported in New Orleans or other Mississippi River towns further upriver from the Gulf of Mexico. Even Louisiana natives who fish for shark with nets in state waters live in neighboring towns, not in Venice. Shrimp is the largest commercial catch bought and sold in Venice, although this fishery has become less profitable since the late 1980s (Wilson *et al*., 1998). The longline fleet is not well integrated into the Louisiana community of Venice. The longline fishermen are mostly "commuters" from towns and cities further inland, such as New Orleans, and most of them are from a different ethnic background, including many Vietnamese-Americans. Due to the language barrier, many of these fishermen do not participate in public fisheries meetings (NMFS, 1999a).

In 1998, several dealers in Venice drew 40 percent of their business from the longline fleets. Another dealer drew only about 20 percent from longline vessels. A large wholesaler dealt only in longline catches and purchased fish from local dealers. In 1997, 60 percent of this business was tuna, 30 percent shark and ten percent swordfish. The competition between dealers in 1998 was perceived as becoming more aggressive (Wilson *et al*., 1998). Traditional patterns of dealers building relationships by extending services and credit to vessels are giving way to price-based competition to gain access to vessels.

**Table 9.30 Demographic Profile of Venice, Louisiana.** Source: U.S. Census, 1990 and 2000.

| Demographics | 1990 | 2000 |
|---|---|---|
| Total Population | 2,699 | 2,220 |
| **Sex** | | |
| Male | 51.4% | 51.0% |
| Female | 48.6% | 49.0% |
| **Age** | | |
| Median Age | **26.3** | **31.7** |
| < 20 | 42.0% | 35.2% |
| 20 - 44 | 35.1% | 35.2% |
| 45 - 64 | 18.3% | 22.0% |
| > 65 | 4.6% | 7.6% |
| **Race** | | |
| White | 63.9% | 61.9% |
| Black or African American | 31.3% | 28.7% |
| American Indian and Alaska Native | 3.3% | 3.4% |
| Asian and Pacific Islander | 1.4% | 4.0% |
| Other | 0.0% | 0.3% |
| **Household** | | |
| **Total** | **836** | **746** |
| Family households | 84.7% | 78.3% |
| Nonfamily households | 15.3% | 21.7% |
| Average household size | 3.23 | 2.96 |
| Average family size | 3.58 | 3.38 |
| **Housing Occupancy** | | |
| Total housing units | 960 | 933 |
| Vacant housing units | 14.0% | 20.0% |
| **Housing Tenure** | | |
| Owner-occupied housing units | 87.5% | 87.1% |
| Renter-occupied housing units | 12.5% | 12.9% |

| Boothville & Venice, Louisiana | 1990 | 2000 |
|---|---|---|
| **Population:** | 2,699 | 2,220 |
| **Education:** | | |
| High school graduates (25 years or older) | 43.5% | 48.4% |
| **Employment:** | | |
| Labor force (16 years and over) | 48.1% | 53.0% |
| Unemployed | 3.3% | 2.0% |
| Median Household Income | $ 16,250 | $ 33,813 |
| Individuals Below the Poverty Line | 36.2% | 17.3% |
| **Employment in some industry sectors:** | | |
| Managerial/professional | 13.8% | 18.1% |
| Technical, Administrative, & Sales | 20.7% | 19.5% |
| Construction, Production, Maintenance, & Transportation | 12.1% | 40.8% |
| Farming, fishing, forestry, & mining | 16.9% | 11.0% |
| **Industry** | | |
| Forestry, fishing, hunting, mining, and agriculture | 22.5% | 22.7% |
| Construction | 10.8% | 8.1% |
| Manufacturing | 7.1% | 4.8% |
| Wholesale Trade | 9.4% | 0.0% |
| Retail Trade | 16.0% | 13.1% |
| Education, health & social services | 5.6% | 14.4% |
| Arts, recreation, lodging & food services | 0.0% | 10.4% |

While pelagic longline fishermen with large vessels work year-round, pelagic longlining in the area tends to intensify in May and ease up during the wintertime. There are four docks in Venice where longline vessels unload. Docks in Venice employ between five and 15 workers on a seasonal basis for unloading vessels and packing seafood, as well as five to eight people year-round. The docks purchase tuna year round, shrimp from May through December, bottom fish such as drum, catfish, and sheepshead, from January through May, mullet (for the roe) from October through December (NMFS, 1999a).

Researchers in 1998 found that alternative employment outside of the fishery was available. For instance, the oil industry hired unskilled labor from this area in recent years, and employed three percent of the civilian labor force in 2000. The agricultural sector also provides employment opportunities during the off-season for fishing, as reported by one Vietnamese-American captain. However, researchers found that this relatively ready supply of alternative employment threatened the stability of the labor pool for the fishing industry. The Vietnamese-American community has avoided such personnel problems to some extent by relying on tight kinship networks in both fishing and fish buying, although they did report some difficulty in finding captains. The Vietnamese-American community was the only one studied which reported recent investment in new longline vessels. Concerns cited by the fishermen in Venice included the safety of small vessels during winter openings, and the prospect of small vessels having to pay for observers and VMS (Wilson *et al*., 1998).

Other commercial fisheries in the area that could provide alternative employment include pompano in October, mullet from October to January, shrimp from May to December, and oysters from January to May (Wilson *et al*., 1998). Wilson *et al.* concluded that the overall

effect of increased restrictions on this fleet would be increased pressure on grouper and yellowfin tuna, increased difficulty in finding and retaining employees, and an acceleration in the rate at which the fleet's vessels and experienced fishermen are moving overseas, especially to Mexico.

Recreational fishermen fish from Venice year-round, but are affected by inclement weather during the winter. The larger vessels can fish for yellowfin tuna year round, in addition to inshore species like redfish, snapper and speckled trout. Bluefin tuna are found too far away (100 miles offshore) and recreational fishermen are prohibited from directing effort on bluefin tuna anyway. They fish for billfish, particularly blue marlin, from May through November. Blacktip shark was once a popular catch, but recreational fishermen say they are now too small to be an enjoyable catch. There is some animosity between recreational and commercial fishermen, which seems to arise from competition for particular species. Charterboats regularly specify sharks as a species available to their clients.

There are only two marinas in Venice that cater to recreational fishermen, although a third parish-run marina offers vessel slips to both recreational and commercial fishermen. One opened in the mid-1980s and offers boat slips, launches, a hoist, a couple of condominiums, baitshop, fuel, and ice. The marina employs 13 people during peak summer months. Most of the marina's business comes from private vessels from New Orleans and border states. Less than one percent of this business consists of charterboats. The other marina opened only a few years ago, offering 120 pre-paid boat slips, a 64-room two-story hotel, condominiums, a dry dock storage facility, fuel, and ice. This second marina employs 12 to 15 people in its newly opened hotel and another 15 to 25 in the marina. Eight charterboats operate from the marina, and there is room for ten more.

Researchers in 1998 reported that the catch-and-release ethic for billfish was strong among recreational fishermen in Venice, but local billfishing tournaments require that trophy fish be brought to the dock and weighed. Sportfishermen prefer to catch and retain tunas, dolphin fish, and wahoo for consumption, although they voiced support for tag and release programs (NMFS, 1999a).

#### *9.4.17.2 Dulac, Louisiana*

Dulac is located in the center of Terrebonne Parish, about 15 miles South of Houma, Louisiana. Houma lies at the intersection of the Houma Navigational Canal and the Intercoastal Waterway and serves as the parish seat and a locale of employment opportunities in offshore equipment building for Dulac residents (Wilson *et al*., 1998). With easy access to Timbalier Bay and the Gulf of Mexico via the Houma Navigational Canal, many Dulac residents are deeply involved in commercial fishing, and many recreational fishers from Houma and distant Lafayette maintain camps in this area (Impact Assessment, 2004). Terrebonne Parish government is a consolidated government so most data are gathered on a parish-wide basis. According to the Terrebonne Parish Planning Department in 1998, the parish did not spend much time tracking the importance of the commercial fishing industry, but anecdotal evidence suggests that it is a long-standing and significant part of the community economy (Wilson et al., 1998). Landings of tunas, swordfish, and sharks indicate that Dulac is among the most important fishing ports in the state. However, many of the fishermen who target HMS are a commuter population; they land fish in Dulac or purchase fish in Dulac, but they live elsewhere. Three dealers purchase fish

from longline vessels; two are owned and operated by first-generation Vietnamese immigrants, and the other is run by a New Orleans native whose father operates a large tuna wholesale company in Venice.

In 1990, the population was 3,273 individuals; it declined to 2,458 in 2000 (Table 9.31). Dulac reported the same number of males as females both 1990 and 2000. Individuals under 20 years old make up the greatest proportion of the population in both 1990 and 2000 with individuals between 20 and 44 comprising the second largest age group. Whites comprise the largest proportion of race — 49 and 54 percent in 1990 and 2000, respectively. American Indian and Native Alaskans accounted for 48 and 39 percent of the total population in 1990 and 2000, respectively. As noted in Wilson *et al*. (1998), however, this latter category is made up mostly of the Houma Indians, which is a tribe not recognized by the U.S. government. Less than two percent of the population was Asian/Pacific Islander, despite the fact that most of the longline captains who sustain the Dulac commercial industry for tunas, swordfish, and sharks were Vietnamese.

In 1990, Dulac had 922 households with an average size of 3.55 persons per household (Table 9.31). By 2000, the number of households had decreased to 768 and the average size of each household had dropped to 3.20 persons. At the time of the 1990 Census, nearly half of the individuals in Dulac were living below the poverty level, with a median household income of $12,653. In 2000, median household income in Dulac had increased to $22,900, but more than 30 percent of individuals continued to live below poverty level. Per capita income in Dulac in 1990 was $4,946; for the State of Louisiana, average per capita income was $10,635. By 2000, per capita income in Dulac had risen to $8,785, while for the state as a whole, per capita income had risen to $16,912. In 1990, the largest proportion of the Dulac population was employed in the technical, administrative, and sales industries. Whereas in 2000, the largest proportion of the population was employed in construction, production, maintenance, and transportation. Sixteen percent of the population was employed in the farming, fishing, forestry, and mining industries in 2000. Forestry, fishing, hunting, mining, and agriculture were the largest industries in Dulac in both 1990 and 2000.

The combination of a high concentration of minorities in the Dulac population and the high percentage of individuals living below the poverty line highlights the need to consider Executive Order 12898 or Environmental Justice. Under this Executive Order, agencies determine if there will be disproportionately high and adverse environmental effects of its regulations on the activities of minority and low-income populations. As mentioned in Chapter 4, some of the preferred alternatives may have some negative social and/or economic impacts in general, but most of these could be mitigated and none of the preferred alternatives are likely to have disproportionate impacts on minority and low-income sectors of the Dulac population.

**Table 9.31 Demographic Profile of Dulac, Louisiana.** Source: U.S. Census, 1990 and 2000.

| Demographics | 1990 | 2000 |
|---|---|---|
| Total Population | 3,273 | 2,458 |
| **Sex** | | |
| Male | 49.3% | 50.0% |
| Female | 50.7% | 50.0% |
| **Age** | | |
| Median Age | **25.5** | **31.8** |
| ≤ 20 | 41.8% | 35.2% |
| 20 – 44 | 35.2% | 32.2% |
| 45 – 64 | 17.0% | 22.8% |
| ≥ 65 | 6.0% | 9.8% |
| **Race** | | |
| White | 49.4% | 54.0% |
| Black or African American | 2.3% | 2.5% |
| American Indian and Alaska Native | 48.1% | 39.4% |
| Asian and Pacific Islander | 0.0% | 0.5% |
| Other | 0.3% | 0.5% |
| **Household** | | |
| **Total Households** | **922** | **768** |
| Family households | 85.8% | 79.3% |
| Nonfamily households | 14.2% | 20.7% |
| Average household size | 3.55 | 3.20 |
| Average family size | 3.93 | 3.55 |
| **Housing Occupancy** | | |
| Total housing units | 1,182 | 1,063 |
| Vacant housing units | 33.0% | 27.8% |
| **Housing Tenure** | | |
| Owner-occupied housing units | 80.1% | 79.3% |
| Renter-occupied housing units | 19.9% | 20.7% |

| Dulac, Louisana | 1990 | 2000 |
|---|---|---|
| **Population:** | 3,273 | 2,458 |
| **Education:** | | |
| High school graduates (25 years or older) | 27.1% | 39.1% |
| **Employment:** | | |
| Labor force (16 years and over) | 37.8% | 44.9% |
| Unemployed | 8.0% | 3.0% |
| Median Household Income | $ 12,653 | $ 22,900 |
| Individuals Below the Poverty Line | 49.3% | 30.9% |
| **Employment in some industry sectors:** | | |
| Managerial/professional | 5.7% | 12.4% |
| Technical, Administrative, & Sales | 18.1% | 17.7% |
| Construction, Production, Maintenance, & Transportation | 17.2% | 41.4% |
| Farming, fishing, forestry, & mining | 12.3% | 15.9% |
| **Industry** | | |
| Forestry, fishing, hunting, mining, and agriculture | 23.6% | 25.9% |
| Construction | 3.7% | 3.1% |
| Manufacturing | 14.0% | 10.0% |
| Wholesale Trade | 8.5% | 5.7% |
| Retail Trade | 17.7% | 10.3% |
| Education, health & social services | 9.7% | 8.5% |
| Arts, recreation, lodging & food services | 0.0% | 10.7% |

Pelagic longline fishermen in Dulac target yellowfin tuna all year. Dulac longline vessels do not target swordfish, and incidentally-caught sharks are often discarded (Wilson *et al*., 1998). The competition between dealers was perceived as becoming more aggressive in 1998. Traditional patterns of dealers building relationships by extending services and credit to vessels were giving way to price-based competition to gain access to vessels. Researchers reported, in 1998, that one dock in Dulac employed three to four people, but laid them all off in 1998. That dealer purchased tuna (50 percent), shark (30 percent), swordfish (20 percent), and dolphin, wahoo, and amber jack (20 percent combined). Another dealer employed six or seven people in 1998, all of whom lived in Dulac. Of this dealer's purchases, 60 percent were tuna, 20 percent were swordfish and 20 percent were divided among other pelagic species like shark, wahoo, amber jack. A third dealer employed six Mexican workers, supplemented by local residents on a seasonal basis (Wilson *et al.*, 1998). The pelagic longline fleet has seen reductions in its catches with the prohibition of the use of live-bait in 2000 causing a reduction in the community's employment rate. In 2005, HMS permit data show only one dealer in Dulac with several HMS dealer permits.

Researchers in 1998 found that alternative employment outside of the fishery was available. For instance, while unemployment in Louisiana fishing communities has been high in the past, the oil industry hired unskilled labor from this area in recent years. In 1990, 33 residents of Dulac worked in the oil fields and a similar number were employed by the oil industry in 2000. The agricultural sector also provides employment opportunities, as reported by one Vietnamese-American captain, particularly during the off-season for fishing. However, this supply of alternative employment threatened the stability of the labor pool for the fishing industry (Wilson *et al*., 1998). This was true for both captain and crew positions, particularly

among the non-Vietnamese-American population. The Vietnamese-American community avoided such personnel problems to some extent by relying on tight kinship networks in both fishing and fish buying. The Vietnamese-Americans, however, did report some difficulty in finding captains. The Vietnamese-American community was the only one studied which reported recent investment in new longline vessels. In Louisiana, the Vietnamese-American may be impacted more intensely by changes in the regulations given the extent of their investment in this fishery (NMFS, 1999a).

Dulac was also a homeport for a limited inshore shark bottom longline fishery in Federal waters in 1998. Blacktip shark was the main catch in this fishery. These fishermen did not fish much during the winter because of the safety concerns associated with small vessels (Wilson *et al*., 1998). Typically, sharks are caught between five and 20 miles from shore. Almost all vessels that sell in Dulac are owner-operated. Owners are usually their own captains or they hire a close relative to captain their vessel. Good first mates try to acquire their own vessels. At least five bottom longline vessels were built in 1997 and have been added to the fleet in Dulac. Some participants in the bottom longline fishery for sharks also participated in the reef fish fishery. The local fishermen, fishing for shark in state waters, use a gillnet and fish under a special state license because longlining for sharks in state waters is banned.

### 9.4.18 Texas

The population of Texas has increased by nearly 4 million people over the past decade, reaching 20.1 million in 2000 (Table 9.32). The percentage of individuals 25 years and older with a high school diploma and/or a graduate level degree has increased slightly. The percentage of employed individuals, the unemployment rate, and percentage of individuals below the poverty line, have all declined over the past decade. As with many of the other states, employment in the farming, fishing, forestry, and mining industries has declined, whereas the education, health, and social services industries provided the greatest employment opportunities in 2000.

In the state of Texas, 26 residents possessed a commercial tuna permit (Table 9.36). In addition to the commercial tuna permit holders, thirteen individuals held a shark permit and seven individuals held a swordfish permit (Table 9.38 and Table 9.39). The commercial shark fishery generally tends to be a small portion of the commercial fisheries of Texas. There are licensed HMS dealers for tuna, shark, and swordfish operating in 14 different locations in coastal Texas (Table 9.37).

In 2005, there were 586 Texas residents that held an HMS angling permit (Table 9.34). The ASA estimated that saltwater angling generated some $622.2 million in retail sales in Texas in 2001 and that there were 13,322 jobs in Texas associated with the marine recreational fishing industry (ASA, 2002). The number of charter/headboat permit holders from Texas has increased from 129 in 2003 to 168 in 2005 (Table 9.35) with a significant concentration of the 2005 permit holders in Port Aransas (Figure 9.3). Most of these take shark as an incidental catch to other near-shore and offshore fish. In addition to Port Aransas, Freeport, Galveston, Houston, Port Isabel, and Port O'Connor, as well as several other communities, are home to HMS angling permit holders.

**Table 9.32 Texas Demographic Profile.** Source: U.S. Census, 1990 and 2000.

| Texas | 1990 | 2000 |
|---|---|---|
| **Population:** | **16,986,510** | **20,851,820** |
| **Education:** | | |
| High school graduates (25 years or older) | 72.1% | 75.7% |
| **Employment:** | | |
| Labor force (16 years and over) | 66.0% | 63.6% |
| Unemployment Rate | 7.1% | 6.1% |
| Median Household Income | $27,016 | $39,927 |
| Individuals below the poverty line* | 18.1% | 15.4% |
| **Employment in some industry sectors:** | | |
| Farming, fishing, forestry & mining | 4.9% | 2.7% |
| Construction | 6.7% | 8.1% |
| Wholesale trade | 4.9% | 3.9% |
| Retail | 17.4% | 12.0% |
| Manufacturing | 14.4% | 11.8% |
| Education, health & social services | 22.5% | 19.3% |
| Arts, recreation, lodging & food services | 1.2% | 7.3% |

*U.S. Census uses data from 1989 and 1999 to estimate these values.

### 9.4.19 Puerto Rico

The population in Puerto Rico increased by nearly 300,000 people in the last decade (Table 9.33). The percentage of individuals 25 years and older with a high school diploma and/or a graduate level degree has increased by over ten percent in the last decade. The percentage of employed individuals, unemployment rate, and percentage of individuals below the poverty line all declined through the nineties. Education, health, and social services provide the greatest sources of employment. The farming, fishing, forestry, and mining employed less than two percent of the population in 2000.

While Puerto Rico was home to 100 commercial tuna permit holders in 2005, there were no permit holders for sharks or swordfish (Table 9.36). A large number of the commercial tuna permit holders are in Aguadilla (44 percent) and another large group is located in Rincon (13 percent). There are six HMS dealer permit holders in Puerto Rico; four for tunas in Aguadilla; one for tunas in Aquada; and one for sharks and swordfish in San Juan (Table 9.37).

**Table 9.33 Puerto Rico Demographic Profile.** Source: U.S. Bureau of the Census, 1990 and 2000.

| Puerto Rico | 1990 | 2000 |
|---|---|---|
| **Population:** | **3,522,037** | **3,808,610** |
| **Education:** | | |
| High school graduates (25 years or older) | 49.7% | 60.0% |
| **Employment:** | | |
| Labor force (16 years and over) | 47.3% | 40.7% |
| Unemployment Rate | 20.4% | 19.2% |
| Median Household Income | | $ 14,412 |
| Individuals below the poverty line* | 58.9% | 48.2% |

| Puerto Rico | 1990 | 2000 |
|---|---|---|
| **Employment in some industry sectors:** | | |
| Farming, fishing, forestry & mining | | 1.7% |
| Construction | | |
| Wholesale trade | | 4.4% |
| Retail | | 11.7% |
| Manufacturing | | 13.5% |
| Education, health & social services | | 19.3% |
| Arts, recreation, lodging & food services | | 6.5% |

*U.S. Census uses data from 1989 and 1999 to estimate these values.

The recreational saltwater fisheries in Puerto Rico attracted 167,000 anglers in 2004, collectively making 1,055,000 fishing trips (NMFS, 2005a). Of these anglers, 16 percent of the anglers were not from Puerto Rico. In 2005, 899 HMS angling permit holders were residing in Puerto Rico (Table 9.34). The following communities have the largest concentrations of HMS anglers: San Juan, Guaynabo, Arecibo, Mayaguez, Vega Baja, Ponce, Carolina, as well as several other communities with smaller concentrations of permit holders. Twenty-seven vessels from Puerto Rico held an HMS charter/headboat permit in 2005, specifically several were located in San Juan and Rincon (Table 9.35). Due to the number of HMS permits issued to individuals located in San Juan, a community profile should be developed in the future.

Generally, the fishing industry of Puerto Rico is made up of private clubs for the upper and middle class and small, and poor artisanal fishing communities. There are approximately 2,500 licensed artisanal fishermen who are required to report their landings to the Office of Natural Resources' Fisheries Laboratory. However, interviews and informal conversation with artisanal fishermen suggest that the reported and actual landings differ widely (Wilson *et al.*, 1998). At the local level, there are artisanal fishermen's associations (villages) and recreational fishermen's membership clubs.

The fishing industry is not a prominent economic activity in Puerto Rico and variations in fishing incomes have little impact on the island's economy. Most of the recreational fishing activity centers around the capital city of San Juan. Artisanal fishing communities are found throughout the island. These communities are extremely poor and will likely be the communities most affected by changes in regulations. The extremely deep inshore waters off these areas make billfish and other highly migratory species accessible to the artisanal fishery.

#### *9.4.19.1 Arecibo, Puerto Rico*

The Arecibo population in 1990 was 93,385 people; approximately 99 percent of those people were born in Puerto Rico or in the United States (NMFS, 1999b). The majority of the population is classified as Hispanic or Latino. Naturalized citizens and non-citizens each make up less than one percent of the population of Arecibo, but their ethnicity is unknown. According to interviews with local government officials, the vast majority of immigrants in Arecibo are from the Dominican Republic; however, there is no way to confirm that information due to waves of illegal immigration. In 2000, the U.S. Census reported the Arecibo population grew by less than seven percent (101,131 people).

The number of households in Arecibo grew by almost ten thousand throughout the last decade, from 24,333 to 34,245 households. In 1990, the median household income is $7,520. By 2000, the median household income increased by $5,000 to $12,520. In the early nineties, thirty-two percent of the households are receiving some kind of public assistance; the average public assistance income is $1,939. The number of individuals below the poverty line did decrease over the past decade, from 73 percent to almost 51 percent. The unemployment rate also declined from 23 percent to eight percent in 2000. Of the population age 16 and older, 43.9 percent are in the civilian labor force in 1990, whereas this number declined to 38 percent in 2000. In 1990, the highest employing industries for men and women were manufacturing and services. In 2000, the construction, production, maintenance, and transportation industries supplied the greatest number of employment opportunities.

Recreational fishing is the predominant mode of participation in the HMS fisheries in Arecibo, Puerto Rico. Fifty-one Arecibo residents hold an HMS angling permit, but none of 28 charter/headboat permit holders in Puerto Rico are from Arecibo. Two Arecibo residents hold a commercial tuna permit. Despite the lack of commercial shark and swordfish permit holders in Puerto Rico, there is one HMS permitted dealer for sharks and swordfish in San Juan, one for tunas in Aquada, and four for tunas in Aquadilla.

The Arecibo Yacht Club is a private club created by and for the local recreational fishermen. The members of the club formed the Association of Sport Fishing of Arecibo and its facilities. Members of the Arecibo Yacht Club organize marlin and inshore fishing tournaments. According to local government officials, the municipality does not get any economic benefit from those tournaments because all the profits go directly to the Club, which is a private business. The tournament does not affect the economy of the region even indirectly by promoting related business because the participants are mainly the same local fishermen. The marlin tournament is held in May. However, according to the commodore of the club, the tournaments are not always lucrative, even for the club (Wilson *et al*., 1998). The club has approximately 253 members, and among them, 82 are boat owners. The size of the vessels fluctuates between 18 and 50 feet. The larger boats, measuring 33 feet or more, have a crew consisting of a captain and a mate. The crew is in charge of the maintenance of the boats while in the marina and directing the fishing journeys. The facilities of the club and marina were constructed with private funds and are a very exclusive place for the middle-upper class of Arecibo. Although, the commodore reports that in the club's facilities there is an area available for the boats of the artisanal fishermen.

Among the members are part-time artisanal fishermen, but most of them are recreational fishermen. However, usually they come out on the weekends and use the money they obtain from the catch to pay for the trip expenses. The artisanal fishermen catch mostly red snapper and grouper by bottom fishing. This kind of fishing is done with a line that goes to the bottom of the sea, mostly in rocky areas. The rest of the fishermen mainly target dolphin and tuna. To catch these species, they use a hand line, or a single cord with one hook. From May through October, marlin, white needle, and blue needle are typically found seven to ten miles from the shore.

## 9.5 Future Assessments

In the future, the HMS permit databases, landings information, and HMS APs should be consulted to determine the most appropriate community profiles for HMS-related fisheries. The 2005 HMS permit data indicate that several new community profiles should be developed and some of the previously profiled communities may not have as significant an investment in the fishery as the community may have in the past (Figure 9.1 – Figure 9.7). Wakefield, Rhode Island should be considered due to the number of commercial tuna and swordfish permit holders in the area. Montauk, New York has a large concentration of charter/headboat, commercial tuna, and HMS dealers in the community. A large number of Cape May residents hold an HMS angling, charter/headboat, shark and/or swordfish permits. Ocean City and Berlin, Maryland have a high concentration of HMS Angling and Charter/headboat permit holders in residence. The commercial fishery is less significant compared to other towns with higher concentrations. In addition to the information from the HMS permit databases, NMFS received a large number of public comments describing the importance of the White Marlin Open Tournament to the Ocean City area economy. Morehead City, North Carolina is home to a number of HMS angling, charter/headboat, and commercial tuna permit holders. Each of these towns is actively involved with more than one sector of HMS fisheries, and therefore changes to HMS regulations may have could have an impact on each of these communities. While the number of permit holders in Puerto Rico and the Virgin Islands are not as numerous as the permit holders on the U.S. mainland, HMS fisheries are active in these two area and several communities benefit from those activities. This chapter does not include a general profile for the Virgin Islands because 1990 and 2000 Census data was incomplete. Future HMS actions should consider developing general profile for the Virgin Islands and a community profile for Christiansted, St. Croix, as well as San Juan, Guaynabo, Aguadilla, Mayaguez, and/or Vega Baja Puerto Rico due to the number of HMS permit holders in these areas. While NMFS may have community profiles describing these areas, to best determine the impact of changes to HMS-related regulations, an HMS-specific community profile should be developed for these towns.

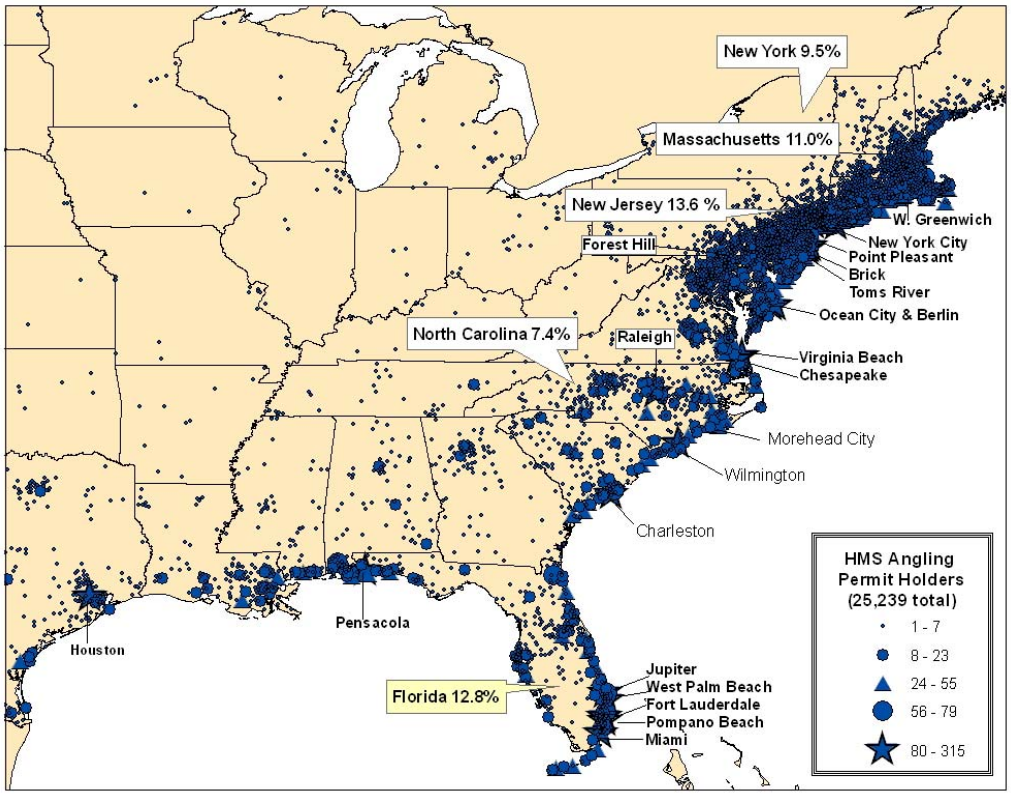


**Figure 9.1 Location of HMS Angling Permit Holders in 2005 and the percentage of Angling permit holders for the top five states.**

**Table 9.34 Number and Percentage of HMS Angling Permits by State and Country in 2005.**

| Angling Permits | | |
|---|---|---|
| **State** | **Total** | **%** |
| New Jersey | 3,439 | 13.6% |
| Florida | 3,238 | 12.8% |
| Massachusetts | 2,769 | 11.0% |
| New York | 2,391 | 9.5% |
| North Carolina | 1,863 | 7.4% |
| Maryland | 1,563 | 6.2% |
| Pennsylvania | 1,520 | 6.0% |
| Virginia | 1,351 | 5.4% |
| Connecticut | 1,080 | 4.3% |
| Puerto Rico | 899 | 3.6% |
| Rhode Island | 831 | 3.3% |
| Delaware | 741 | 2.9% |
| South Carolina | 736 | 2.9% |
| Louisiana | 602 | 2.4% |
| Texas | 586 | 2.3% |
| New Hampshire | 324 | 1.3% |
| Alabama | 320 | 1.3% |
| Maine | 251 | 1.0% |
| Georgia | 205 | 0.8% |
| Mississippi | 194 | 0.8% |
| Tennessee | 52 | 0.2% |
| Virgin Islands | 31 | 0.1% |
| Vermont | 31 | 0.1% |
| Ohio | 24 | 0.1% |
| Michigan | 22 | 0.1% |
| Illinois | 17 | 0.1% |
| Missouri | 17 | 0.1% |
| California | 14 | 0.1% |
| West Virginia | 14 | 0.1% |
| Washington, DC | 13 | 0.1% |
| Arkansas | 12 | 0.0% |
| Wisconsin | 9 | 0.0% |
| Kentucky | 8 | 0.0% |
| Minnesota | 8 | 0.0% |
| Indiana | 7 | 0.0% |
| Nevada | 6 | 0.0% |
| Oklahoma | 6 | 0.0% |
| Alaska | 5 | 0.0% |
| Colorado | 5 | 0.0% |
| Iowa | 5 | 0.0% |
| Kansas | 4 | 0.0% |
| New Mexico | 4 | 0.0% |
| Arizona | 3 | 0.0% |
| Marshall Islands | 2 | 0.0% |
| North Dakota | 2 | 0.0% |
| Nebraska | 2 | 0.0% |
| Palau | 2 | 0.0% |
| Washington | 2 | 0.0% |
| Wyoming | 2 | 0.0% |
| British Virgin Islands | 1 | 0.0% |
| Canada | 1 | 0.0% |
| Micronesia | 1 | 0.0% |
| Hawaii | 1 | 0.0% |
| Montana | 1 | 0.0% |
| Oregon | 1 | 0.0% |
| South Dakota | 1 | 0.0% |
| **Grand Total** | **25,239** | **100%** |

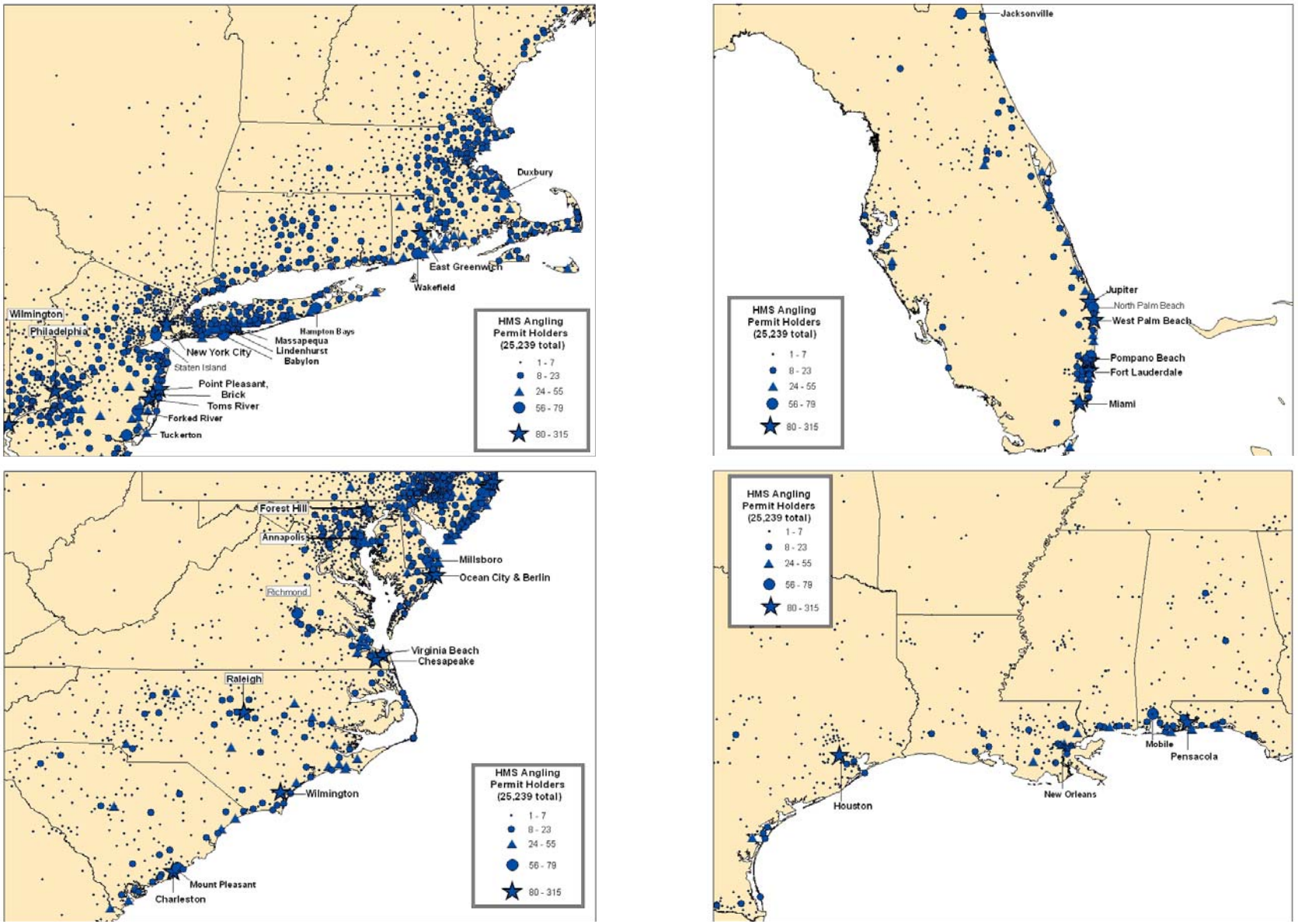


**Figure 9.2 Location of HMS Angling Permit Holders in 2005 by region.**

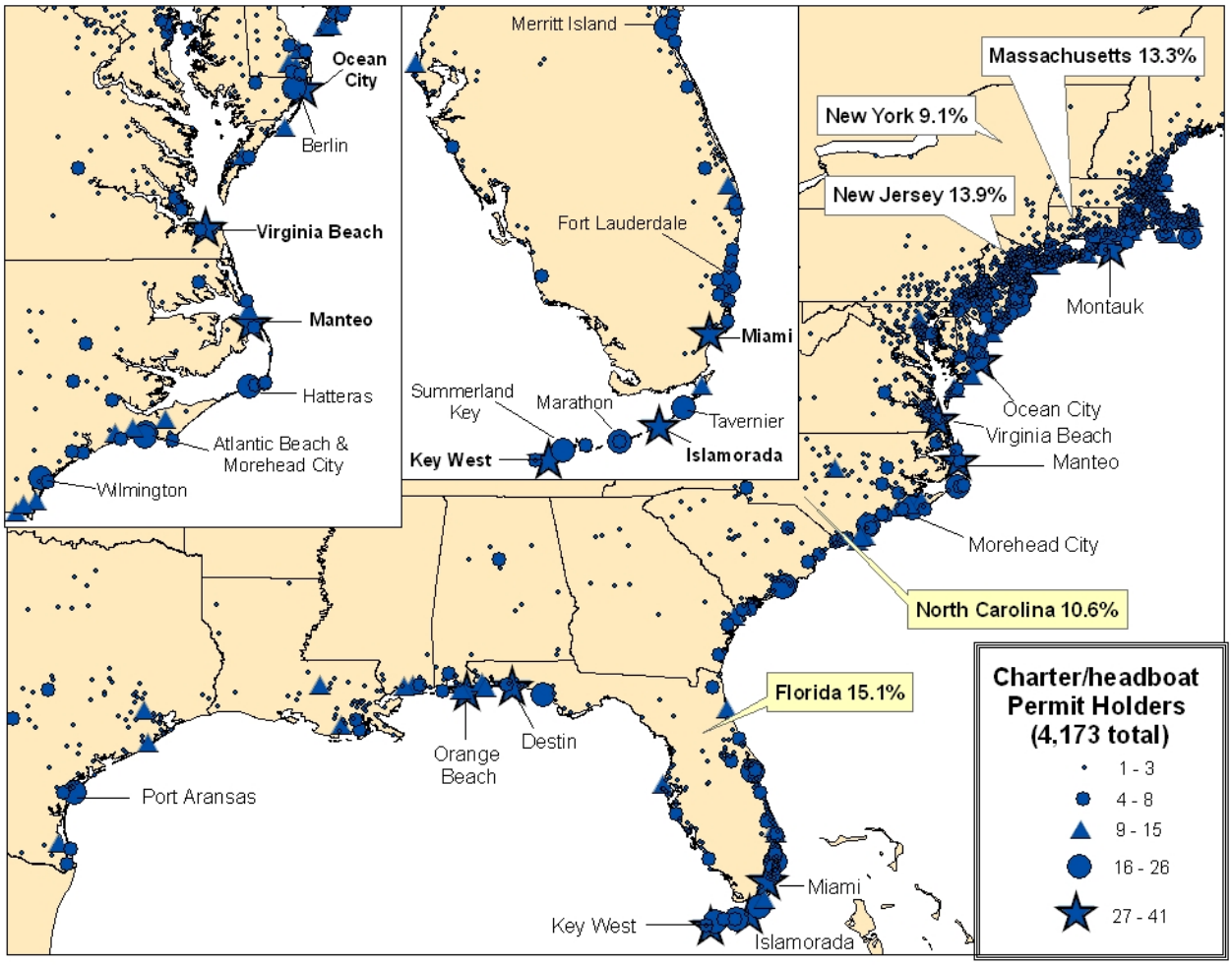


**Figure 9.3 Location of the HMS Charter/Headboat Permit Holders in 2005 and the percentage of HMS Charter/Headboat permit holders for the top five states.**

**Table 9.35 Number and Percentage of HMS Charter/Headboat Permits by State and Country in 2005.**

| Charter/Headboat Permits | | |
|---|---|---|
| **State** | **Total** | **%** |
| Florida | 632 | 15.1% |
| New Jersey | 578 | 13.9% |
| Massachusetts | 557 | 13.3% |
| North Carolina | 441 | 10.6% |
| New York | 379 | 9.1% |
| Maryland | 196 | 4.7% |
| Texas | 168 | 4.0% |
| Virginia | 153 | 3.7% |
| Pennsylvania | 143 | 3.4% |
| Rhode Island | 143 | 3.4% |
| South Carolina | 130 | 3.1% |
| Connecticut | 110 | 2.6% |
| Delaware | 103 | 2.5% |
| Louisiana | 90 | 2.2% |
| Alabama | 78 | 1.9% |
| Maine | 61 | 1.5% |
| New Hampshire | 55 | 1.3% |
| Georgia | 40 | 1.0% |
| Mississippi | 36 | 0.9% |
| Puerto Rico | 27 | 0.6% |
| Virgin Islands | 20 | 0.5% |
| California | 1 | 0.0% |
| Tennessee | 6 | 0.1% |
| Michigan | 4 | 0.1% |
| Ohio | 3 | 0.1% |
| Illinois | 2 | 0.0% |
| Kentucky | 2 | 0.0% |
| Oklahoma | 2 | 0.0% |
| Vermont | 2 | 0.0% |
| West Virginia | 2 | 0.0% |
| Alaska | 1 | 0.0% |
| Hawaii | 1 | 0.0% |
| Indiana | 1 | 0.0% |
| Marshall Islands | 1 | 0.0% |
| Minnesota | 1 | 0.0% |
| Missouri | 1 | 0.0% |
| Nebraska | 1 | 0.0% |
| Nevada | 1 | 0.0% |
| Palau | 1 | 0.0% |
| **Grand Total** | **4,173** | **100%** |

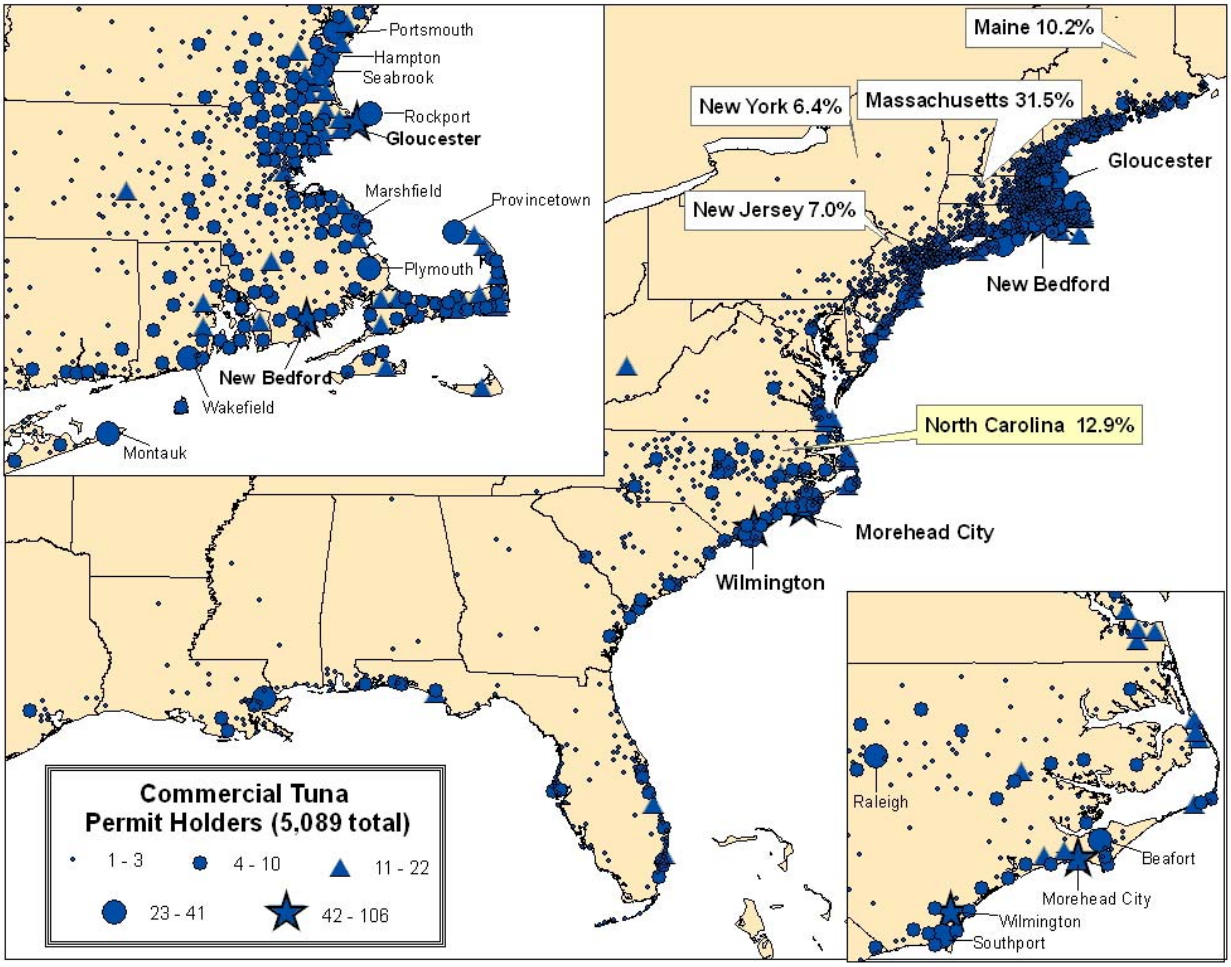


**Figure 9.4 Location of the Commercial Tuna Permit Holders in 2005 (all gear categories - harpoon, longline, purse seine, and trap) and the percentage of commercial tuna permit holders for the top five states.**

**Table 9.36 Number and Percentage of Commercial Tuna Permits by State and Country in 2005.**

| Commercial Tuna Permits | | |
|---|---|---|
| **State** | **Total** | **%** |
| Massachusetts | 1,601 | 31.5% |
| North Carolina | 659 | 12.9% |
| Maine | 517 | 10.2% |
| New Jersey | 357 | 7.0% |
| New York | 327 | 6.4% |
| New Hampshire | 278 | 5.5% |
| Florida | 250 | 4.9% |
| Rhode Island | 232 | 4.6% |
| Connecticut | 170 | 3.3% |
| Puerto Rico | 106 | 2.1% |
| Virginia | 106 | 2.1% |
| South Carolina | 89 | 1.7% |
| Louisiana | 86 | 1.7% |
| Pennsylvania | 59 | 1.2% |
| Maryland | 57 | 1.1% |
| Virgin Islands | 46 | 0.9% |
| Delaware | 39 | 0.8% |
| Georgia | 26 | 0.5% |
| Texas | 26 | 0.5% |
| Alabama | 20 | 0.4% |
| Vermont | 11 | 0.2% |
| Mississippi | 8 | 0.2% |
| Colorado | 2 | 0.0% |
| Washington, DC | 2 | 0.0% |
| Hawaii | 2 | 0.0% |
| Michigan | 2 | 0.0% |
| Alaska | 1 | 0.0% |
| Arizona | 1 | 0.0% |
| California | 1 | 0.0% |
| Idaho | 1 | 0.0% |
| Indiana | 1 | 0.0% |
| Minnesota | 1 | 0.0% |
| Montana | 1 | 0.0% |
| Oklahoma | 1 | 0.0% |
| Tennessee | 1 | 0.0% |
| Washington | 1 | 0.0% |
| West Virginia | 1 | 0.0% |
| **Grand Total** | **5,089** | **100%** |

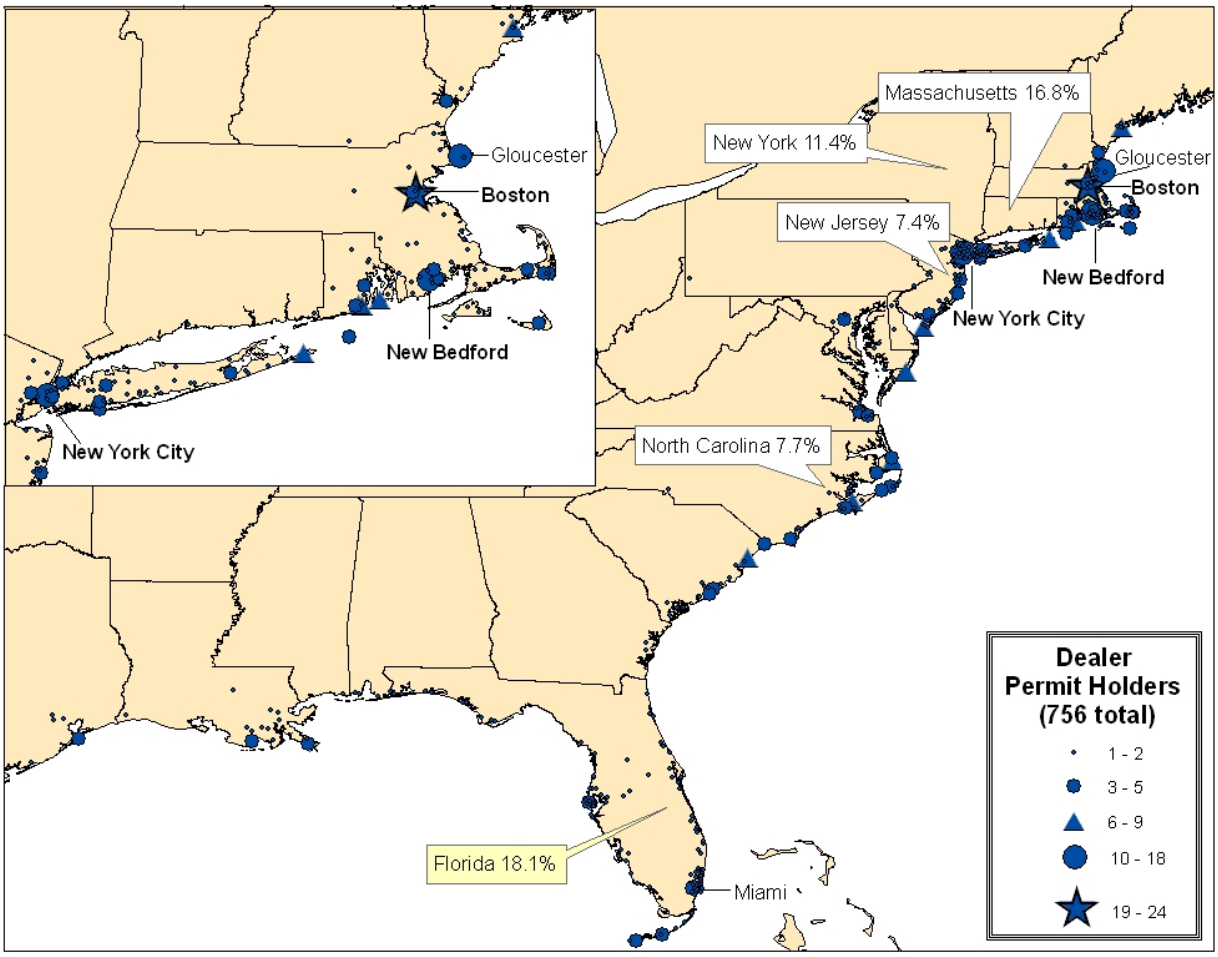


**Figure 9.5** **Location of all HMS Dealer Permit Holders as of February 2006 for shark and swordfish permits and for fishery year 2005 for tunas and the percentage of total HMS dealer permit holders for the top five states.**

**Table 9.37** **Number and Percentage of HMS Dealers by State and Country as of February 2006 (sharks and swordfish) and for calendar year 2005 (tunas).**

| HMS Dealer Permits | | |
|---|---|---|
| **State** | **Total** | **%** |
| Florida | 137 | 18.1% |
| Massachusetts | 127 | 16.8% |
| New York | 86 | 11.4% |
| North Carolina | 58 | 7.7% |
| New Jersey | 56 | 7.4% |
| Rhode Island | 45 | 6.0% |
| California | 42 | 5.6% |
| South Carolina | 32 | 4.2% |
| Virginia | 27 | 3.6% |
| Maine | 26 | 3.4% |
| Louisiana | 25 | 3.3% |
| Maryland | 16 | 2.1% |
| Texas | 14 | 1.9% |
| Hawaii | 9 | 1.2% |
| Washington | 9 | 1.2% |
| Canada | 8 | 1.1% |
| Puerto Rico | 7 | 0.9% |
| Alabama | 5 | 0.7% |
| New Hampshire | 5 | 0.7% |
| Pennsylvania | 5 | 0.7% |
| Virgin Islands | 5 | 0.7% |
| Delaware | 3 | 0.4% |
| Georgia | 3 | 0.4% |
| Connecticut | 2 | 0.3% |
| Chile | 1 | 0.1% |
| Illinois | 1 | 0.1% |
| Missouri | 1 | 0.1% |
| Mississippi | 1 | 0.1% |
| **Grand Total** | **756** | **100%** |

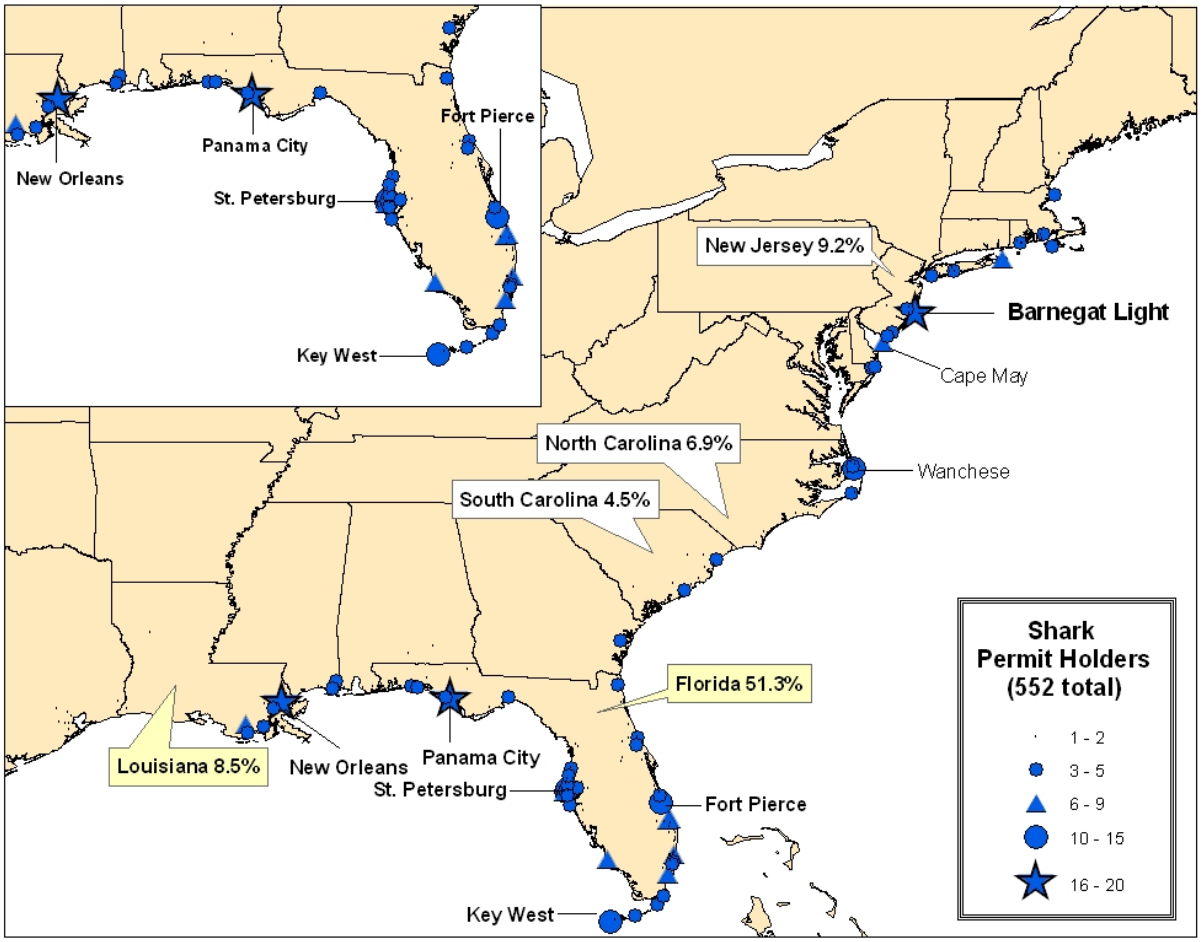


**Figure 9.6** **Location of the Shark Directed and Incidental Permit Holders as of February 2006 and percentage of shark permit holders for the top five states.**

**Table 9.38** **Number and Percentage of Directed and Incidental Shark Permit Holders by State as of February 2006.**

| Shark Permits | | |
|---|---|---|
| **State** | **Total** | **%** |
| Florida | 283 | 51.3% |
| New Jersey | 51 | 9.2% |
| Louisiana | 47 | 8.5% |
| North Carolina | 38 | 6.9% |
| South Carolina | 25 | 4.5% |
| New York | 21 | 3.8% |
| Massachusetts | 17 | 3.1% |
| Texas | 13 | 2.4% |
| Maryland | 10 | 1.8% |
| Rhode Island | 9 | 1.6% |
| Mississippi | 8 | 1.4% |
| Alabama | 7 | 1.3% |
| Virginia | 6 | 1.1% |
| Maine | 5 | 0.9% |
| Georgia | 3 | 0.5% |
| New Hampshire | 3 | 0.5% |
| California | 2 | 0.4% |
| Connecticut | 2 | 0.4% |
| Delaware | 1 | 0.2% |
| Virgin Islands | 1 | 0.2% |
| **Grand Total** | **552** | **100%** |

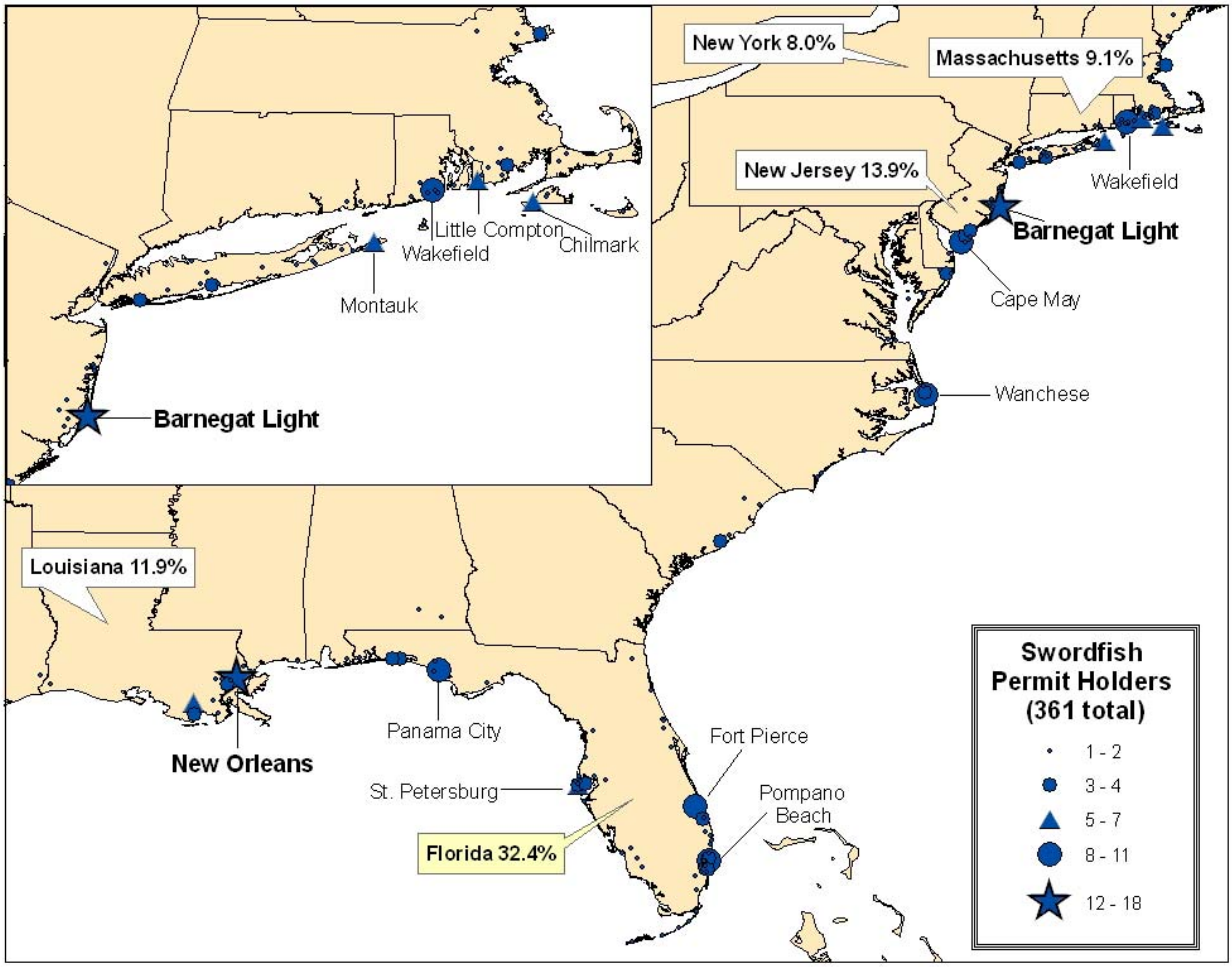


**Figure 9.7 Location of the Swordfish Permit Holders as of February 2006 and the percentage of swordfish permit holders for the top five states.**

**Table 9.39 Number and Percentage of Swordfish Permit Holders by State as of February 2006.**

| Swordfish Permits | | |
|---|---|---|
| **State** | **Total** | **%** |
| Florida | 117 | 32.4% |
| New Jersey | 50 | 13.9% |
| Louisiana | 43 | 11.9% |
| Massachusetts | 33 | 9.1% |
| New York | 29 | 8.0% |
| Rhode Island | 27 | 7.5% |
| North Carolina | 20 | 5.5% |
| Maryland | 7 | 1.9% |
| South Carolina | 7 | 1.9% |
| Texas | 7 | 1.9% |
| Virginia | 5 | 1.4% |
| Maine | 4 | 1.1% |
| Alabama | 3 | 0.8% |
| California | 2 | 0.6% |
| Connecticut | 2 | 0.6% |
| Mississippi | 2 | 0.6% |
| Delaware | 1 | 0.3% |
| New Hampshire | 1 | 0.3% |
| Virgin Islands | 1 | 0.3% |
| **Grand Total** | **361** | **100%** |

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